

THE DEVELOPMENTAL STAGES OF CONCERN OF TEACHERS TOWARD THE
IMPLEMENTATION OF THE INFORMATION TECHNOLOGY CURRICULUM
IN KUWAIT

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Change is best carried out by individual teachers, and, thus, identifying and resolving teachers' concerns about an innovation is imperative in guiding the change process to a successful point of implementation. The purpose of this study was to identify concerns that teachers experienced when implementing the Information Technology curriculum in all intermediate schools in Kuwait and to examine the relationships among teachers' reported stages of concern and other factors, such as gender and experience. The stages of concern, one dimension of the Concerns-Based Adoption Model (CBAM), was applied to reveal teachers' concerns. The Stages of Concern Questionnaire (SoCQ) and a demographic survey were completed by 248 respondents. The SoCQ measures seven stages of concern that reflect three dimensions: self (awareness, informational, and personal); task (management); and impact (consequence, collaboration, and refocusing).

Group profile analysis revealed that teachers had four high concerns related to collaboration, personal, refocusing, and informational stages. Teachers also reported low concerns at the management and awareness stages. Both females and males reported collaboration as their greater concern. Teachers with more years of experience reported higher impact concerns. The analysis of individuals' peak concerns revealed that the

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CHAPTER 1

INTRODUCTION

Education in Kuwait is a single-gender schooling provision in the general education. Schooling in Kuwait is based on a 12-year system for the general education (pre-university). This system includes a four-grade elementary schooling, a four-grade intermediate schooling, and a four-grade secondary schooling. This structure is generalized over both public and private schools in five school districts serving all of Kuwait. Kuwait has two higher education institutions, the University of Kuwait and the Public Authority for Applied Education and Training.

The revolution of information technology has its impact on traditional education, and Kuwait is no exception. According to Alkhbaz (1994), the Ministry of Education (MOE) has raised the interest of computer implementation in general education since the early 1980s. The MOE formulated planning teams, established computer education committees, identified goals and means, provided staff development, and then mandated computer education in the secondary schools (Alkhbaz, 1994). Alkhbaz reported that after the success of computer implementation in the academic year of 1985-1986 in four selected experimental schools, computer education has been mandated in all secondary schools.

After the success of computer technology implementation in the secondary schools, the MOE has been interested in repeating the experiment in the intermediate schools. The Kuwait Intermediate School Information Technology Project (KISITP) is

the product of MOE's interest in computer dissemination in all intermediate schools in Kuwait (Al-Furaih, Al-Sadoun, & Ebeid, 1997). This project is an ongoing implementation of computer education that started in some schools in the 1994-1995 school year and will be implemented fully in all intermediate schools in the academic year 2002-2003. According to Al-Furaih et al. (1997), the philosophy and goals of the KISITP program are as follows:

- Empowering each student to fulfill his or her own potential by initiating computer skills at early stage.
 - Preparing students to meet the demands of a rapidly changing society and preventing alienation to modern technology.
 - Reinforcing active learning through using the computer as well as other high-tech equipment as a tool to develop Higher-Order Thinking Skills (HOTS) such as problem solving, decision making, and reasoning.
 - Integrating learning experiences through linking IT skills with other subject areas within the curriculum.
 - Cultivating positive attitudes among students toward computer-oriented education.
 - Encouraging cooperative learning through group work involving gathering, analyzing, and managing information.
- By the end of the intermediate stage, it is expected that the students will be able to fulfill the following goals:
- Use the computer as a general-purpose tool to support their learning through the use of word processing, database, spread sheet, graphics, telecommunications, and other general-purpose application packages.
 - Use the computer as a problem-solving tool through the use of LOGO programming language or spread sheet to develop their analytical skills.
 - Use word processing technology, integrating with other appropriate computer applications such as graphics in support of their work in different subject areas and self-created projects.
 - Be exposed to the use of Computer-Assisted Instruction (CAI) to enhance their learning through the use of drill and practice, simulation, and tutorials.
 - Be exposed to multimedia presentations in a variety of activities.
 - Be acquainted with some innovations in computers such as E-mail and Internet culture. (p. 674)

In order to achieve the KISITP goals and objectives, a group of specialists in computer education has developed a framework for an Information Technology curriculum (IT). The IT has been reviewed and revised several times based on evaluation studies conducted during the school years of 1995-1996 and 1996-1997 (Al-Furaih et al, 1997). The Information Technology curriculum consists of six units of computer utilization and applications. These units include Computer World, Graphics, Word Processor, Logo, Spread Sheet, and Integrative Projects. The IT units are to be taught from fifth grade through eighth grade as shown in Table 1.

Table 1
Distribution of IT Units

Grade	First semester (30 sessions)		Second semester (30 sessions)		
Fifth	Computer World (12 Sessions)	Graphics (18 Sessions)	Word Processor (16 Sessions)	Logo (14 Sessions)	
Sixth	Graphics (14 Sessions)	Word processor (16 Sessions)	Computer World (8 Sessions)	Logo 14 Sessions	Project 8 Sessions
Seventh	Word Processor (16 Sessions)	Spread Sheet (14 Sessions)	Computer World (10 Sessions)	Logo 10 Sessions	Project 10 Sessions
Eighth	Spread Sheet (20 Sessions)	Computer World (10 Sessions)	Computer World (10 Sessions)	Logo 10 Sessions	Project 10 Sessions

Adapted from Al-Furaih et al. (1997).

Moreover, in order to facilitate the adoption of the IT curriculum, the Ministry of Education has recruited specialized computer teachers to teach this curriculum. The teachers have been provided with staff development in the Ministry Training Center. They first complete a diagnostic test, and then appropriate training sessions are provided. Also, new textbooks, teacher guides, and classroom materials have been adopted for each grade level to accommodate both the teaching and the learning of the new curriculum.

According to Al-Furaih et al. (1997), the futuristic vision of the Kuwait Intermediate School Information Technology Project (KISITP) is to continue IT curriculum implementation at all grade levels, to ensure resource availability, to provide ongoing staff development, to evaluate the program continuously, and to empower other subject-area teachers to integrate computer utilization into their content areas.

In this project, teachers' concerns have never been addressed as factors in the innovation of computer implementation. According to Hord, Rutherford, Huling-Austin, and Hall (1987), change is best carried out by individual teachers, and, thus, identifying teacher concerns about an innovation is essential in facilitating the adoption process. The authors also recommended the use of the Concerns-Based Adoption Model (CBAM) to guide innovation implementation to a successful point of adoption. According to Hord et al. (1987); Loucks-Horsley (1996); and Sashkin and Egermeier (1992), the CBAM is an effective tool in identifying individual users' needs and thus can facilitate the adoption process. The CBAM is discussed in detail in chapter 2.

The research on change process addresses the importance of identifying individuals' concerns, perceptions, feelings, and attitudes toward the implementation of an innovation (Hall, George, & Rutherford, 1979). "According to Rogers and Marcus (1989), in order to effectively manage change, the human component must be understood and given top priority" (Hawes, 1993). Therefore, the concerns of teachers in Kuwait about the Information Technology curriculum must be identified, and appropriate interventions must be provided to assist teachers in implementing this innovation effectively.

Statement of the Problem

The problem of this study deals with the emerging concerns of teachers when they implement a computer innovation and whether these concerns are consistent among females and males with varying years of experiences.

Purpose of the Study

The purpose of the study was to identify teachers' stages of concerns toward the implementation of the Information Technology curriculum in the intermediate schools in Kuwait ($N = 312$ teachers). Also, this study was designed to examine the relationship between teachers' stages of concern and factors such as experience and gender.

Research Questions

This study was designed to answer the following research questions:

1. What are teachers' concerns toward the implementation of the Information Technology curriculum in the intermediate schools in Kuwait?
2. Are there significant relationships between teachers' stages of concern and other factors, such as experience and gender?

Definition of Terms

KISITP: Kuwait Intermediate School Information Technology Project, an ongoing implementation of computer education that started in some schools in the 1994-1995

school year and will be implemented fully in all intermediate schools in Kuwait in the academic year 2002-2003.

Information Technology (IT): computer education curriculum that includes six units of computer utilization and applications: Computer World, Graphics, Word Processor, Logo, Spread Sheet, and Integrative Projects.

Change: development process that takes time to occur.

Innovation: any process or product that is new to a potential user (Hall, 1979).

Concerns: the composite description of the various motivations, perceptions, attitudes, feelings, and mental gyrations experienced by a person in relation to an innovation (Hall, 1979).

Theory of Concern Development: posits that early in a change effort, teachers have more intense self concerns about an innovation. As implementation progresses, their concerns tend to shift more to the task of using the innovation. Ultimately, if the innovation is appropriate and the necessary supports are available, various kinds of impact concerns can become most intense (Hord & Hall, 1987).

Concerns-Based Adoption Model (CBAM): a model of change that was developed by Hall, Wallace, and Dossett (1973) to identify concerns that individuals experience during the change process (Hord et al., 1987).

Adoption: the process of an innovation acceptance and implementation in daily practice.

Appropriate Interventions: supportive actions that are taken to facilitate change process.

Significance of the Study

This study was designed to make significant contributions to the Kuwait Intermediate School Information Technology Project (KISITP), in particular, and to the research on teacher concerns about innovation, in general. This study will contribute to the areas of policy, theory of concern development, and research methods.

First, the findings of this study could be used by the KISITP coordinators to facilitate the change process in the intermediate schools. According to Wood (1989), not all innovation finds its way into actual daily practice in classrooms unless the implementation is monitored and appropriate interventions are provided. Personalizing the innovation by identifying teachers' concerns is the key to successful intervention (Vaughan, 1997). Policy makers in Kuwait will be able to understand teachers' concerns, perceptions, and attitudes toward the implementation of the Information Technology (IT) curriculum. This study also presents recommendations for some appropriate interventions to resolve the concerns of teachers toward the adoption of the IT curriculum. Thus, appropriate decisions can be made about what and how to provide interventions during the implementation process. Also, the findings of this study may contribute to the development of new policies to guide change to a point of effective implementation.

Second, the findings of this study will contribute to the theory of concern development. The research of Fuller (1969) concluded that teachers' concerns develop from early-stage concerns (self concerns) to late-stage concerns (concerns with pupils). Fuller's model assumes that concerns tend to shift from personal, to task, and finally to

impact concerns. Moreover, Hall (1985) reported that the research on teacher concerns has proven that teachers' concerns toward an innovation are developmental if the innovation is appropriate and supportive interventions have been provided. The theory of concern development was based on the information gathered from research done on American samples. In this study, the population was Kuwaiti teachers speaking the Arabic language. Therefore, this study reveals whether the theory is consistent with a different population. The findings of this study will contribute to the overall understanding of how the concerns of teachers in Kuwait are developed.

Third, the findings of this study could contribute to a research methodology if the study is to be replicated. The Stages of Concern Questionnaire (see Appendix A) is the instrument used to collect data about teacher concerns toward the implementation of the IT curriculum in the intermediate schools in Kuwait. Stages of concern is a primary dimension of the Concern-Based Adoption Model (CBAM), a model developed at the University of Texas R&D Center to conceptualize and facilitate educational change (Hall et al., 1979). Seven hypothesized stages of concern that reflect three dimensions have been defined: self concerns (awareness, informational, and personal); task concerns (management); and impact concerns (consequence, collaboration, and refocusing).

The Stages of Concern Questionnaire (SoCQ) and its scoring manual, developed by Hall et al. (1979), are based on data collected from research on American subjects, and this questionnaire has been proven valid and reliable in providing meaningful data about teachers' concerns. However, in this study, the SoCQ was translated into the Arabic language, and its reliability and validity remain important. The development of this new

version of the SoCQ will allow the original English-type questionnaire to be used for collecting data about the concerns of Arabic subjects.

Finally, this study will contribute to the research on change and teachers' concerns about the adoption of an innovation. The findings of this study can help the facilitators of change to make appropriate decisions on when and how to provide support to individual teachers during the implementation of the IT curriculum in Kuwait. Also, in this study, the CBAM was introduced as an effective tool to facilitate the change process in Kuwait. The Arabic Stages of Concern Questionnaire is a significant product of this research.

Limitations of the Study

In this study, the data were collected from computer teachers in 162 intermediate schools participating in the KISITP. Therefore, the results of this study can be generalized only to the population of IT teachers in the participating intermediate schools.

Data collection relied on teachers' willingness to respond to the SoCQ honestly. Participants voluntarily and independently completed the questionnaire; therefore, the results of this study were affected by whether the teachers' responses represented true reflections of their present concerns.

In addition, participants' responses might have been influenced by some external events, such as the month of Ramadan, extra school activities, involvement in other projects, and examination periods.

Assumptions of the Study

1. It was assumed that the volunteer sample of teachers is a representative sample of the target population of all IT teachers in the intermediate schools in Kuwait.
2. It was assumed that teachers understood that their participation was voluntary and that all information they provided would be confidential.
3. It was assumed that teachers would complete the SoCQ honestly.
4. It was assumed that the response rate to the SoCQ would be at least 60%.
5. It was assumed that all teachers involved are qualified in computer education.
6. It was assumed that all teachers were provided at least one session of training.

Summary

In this chapter, a detailed description of the Kuwait Intermediate School Information Technology Project (KISITP) has been provided. Kuwait's efforts in facilitating the implementation of the Information Technology (IT) curriculum are also described in detail. The study limitations, contributions, and assumptions were discussed in this chapter as well. Chapter 2 contains a review of the literature that builds a bridge of relationship between this study and other studies in the area of change and teacher concerns about innovations. Chapter 3 presents a description of the research methods and procedures followed in conducting this study. Chapter 4 includes the presentation and analysis of data with relation to the research questions. Chapter 5 is a discussion of the findings of this study and their potential contributions to change and teacher concerns.

CHAPTER 2

REVIEW OF THE LITERATURE

Kuwait has mandated the adoption of a computer education curriculum in all intermediate schools. This project, called the Kuwait Intermediate School Information Technology Project (KISITP), is an ongoing implementation that started in some schools in the 1994-1995 school year and will be implemented fully in all intermediate schools in the academic year 2002-2003. The Information Technology (IT) curriculum includes six units of computer utilization and applications: Computer World, Graphics, Word Processor, Logo, Spread Sheet, and Integrative Projects (Al-Furaih et al., 1997). The Ministry of Education has recruited specialized computer teachers to teach this curriculum and has provided them with staff development. New textbooks, teacher guides, and classroom materials have been adopted for each grade level to accommodate teaching and learning the new curriculum.

This is a relational study that was conducted to identify concerns that teachers experienced when implementing the IT curriculum in the middle schools in Kuwait. Also, it was designed to investigate the relationships between teacher stages of concern and factors such as experience and gender. The stages of concern survey was delivered to teachers who were either teaching or were at the beginning of teaching the Information Technology curriculum in Kuwaiti intermediate schools.

This chapter presents a review of the literature that has contributed to the development of the framework of this study and provides the research foundation. This

chapter is divided into five major sections: (a) the change process; (b) the theory of concern development; (c) the Concerns-Based Adoption Model (CBAM); (d) training and experience as factors related to stages of concern; and (e) gender differences and stages of concern.

The Change Process

In school settings, the notion of change is associated with school improvement and reform. According to Hall (1981), change as a process involves the adoption of new ideas about improving educational outcomes. The process of effective change requires the provision of many supportive factors to facilitate and move change to a point of successful implementation.

According to Boyd (1992), change must be seen as having a comprehensive impact on all areas of the school context; the development of a supportive school context would facilitate the change process. Boyd further identified factors of the school context that either foster or inhibit the process of effective change. Boyd believes that school context consists of two dimensions: (a) school ecology, which includes the physical surrounding (school size), policies and rules, and resource availability; and (b) school culture, including attitudes and beliefs, school norms, and relationships both within the school and between the school and the surrounding community. To mobilize effective change, facilitators of change must focus on the development of a supportive and positive school context that encourages the reduction of school isolation, fosters positive policies, ensures resource availability, creates positive attitudes and beliefs, develops effective

school norms, and encourages mutual interrelationships between people involved in change (Boyd, 1992).

Mendez-Morse (1993) recommended that the school should develop its own vision as a guide for what it wishes to attain, and this vision should be developed and shared by all staff in the school if change is to be effective. She wrote, “Vision is a picture of the future for which people are willing to work” (p. 1), adding that, when a school staff has a shared vision, the staff is more encouraged, motivated, and committed to change.

According to Sashkin and Egermeier (1992), three perspectives are most influential in educational change: (a) the rational-scientific perspective, which is based on the idea that change occurs by the dissemination of innovation techniques; (b) the political perspective, which believes that change is best made by top-down decisions, from federal-level to state-level reforms; and (c) the cultural perspective (bottom-up approach), which emphasizes change by encouraging changes in meanings and values within the organization. Knowing these perspectives helps in understanding the nature and use of different operational strategies of change. Sashkin and Egermeier stated that these operational strategies include the following: (a) fix the parts, which involves the adoption of proven innovations for the purpose of improving student outcomes; (b) fix the people, based on the idea that improving educational outcomes is best achieved by improving teachers’ and administrators’ knowledge and skills; (c) fix the school, which means the development of school organizations’ capacities to solve their own problems effectively; and (d) fix the system, which focuses on comprehensive change and

a restructuring of the entire school system and incorporates the other three strategies for change. Also, Sashkin and Egermeier emphasized the use of the Concerns- Based Adoption Model (CBAM) so that change can be effectively implemented.

Cuban (1988) identified two kinds of reforms: first-order and second-order change. First-order change concerns improving the existing system and structure in the school, whereas second-order change involves rearranging, restructuring, and altering the existing organizational structure. Cuban concluded that the history of school reforms indicates that first-order changes have succeeded because they aimed to improve the quality and efficiency of what already existed. Second-order changes have not been successful because they are difficult to adopt and even harder to implement.

Hord (1990) emphasized that a school should develop a profound understanding of the change among teachers and accommodate this change in order successfully to implement an innovation. According to Hord, the innovation should be appropriate and well communicated, with the intended users understanding what the innovation is all about, what their roles are, what the expected outcomes are, and how the innovation is best implemented. For these reasons, Hord encouraged the use of CBAM components, Innovation Configuration, Stages of Concern, and Levels of Use, to facilitate change process.

Fullan and Miles (1992) reported that successful change could be achieved through seven orientations that have been incorporated into thinking and are reflected in the actions of those involved in the change process:

1. Change is learning loaded with uncertainty. Even with successful reform

things might go wrong before they go right.

2. Change is a journey, not a blueprint. Because rational planning models for complex social change do not work, there is no need for blueprints for change. Rather, a guided journey is what is needed for change to be succeeded.

3. Problems are our friends. When people immerse themselves in school problems, they can come up with creative solutions.

4. Change is resource hungry. Because change represents developing solutions to complex problems, learning new skills, and arriving at new insight, change always demands additional resources.

5. Change requires the power to manage it. The management power of change goes best when it is carried out by a cross-role group. The power of management should be shared by all parties involved in change.

6. Change is systemic. Change must not only focus on structure, policies, and regulations but also focus on deeper issues such as the culture of the system.

7. All large-scale change is implemented locally. Change can succeed only if it is implemented by everyday teachers, principals, parents, and students.

Barker (1988) reported that paradigms, a set of rules and regulations, guide beliefs and affect judgments and decision making about accepting new things. Barker stated, “It is our paradigms, our rules and regulations that keep us from successfully anticipating the future. We try to discover the future by looking for it through our old paradigm” (p. 25). Therefore, in the change process, Barker encouraged change facilitators to help people who have old ideas to shift their paradigms and accept new ones.

According to Hord et al. (1987) and Wood (1989), change cannot succeed without effective staff development programs that enable innovation users to acquire necessary knowledge and skills for the implementation process. They think that professional development is essential in guiding innovation toward successful implementation. Wood (1982) presented a model of five phases through which staff development will be effectively implemented. The phases are readiness, planning, training, implementation, and maintenance (RPTIM).

Bures, Gross, and Abrami (1998) introduced an online technology planning guide that includes activities for facilitating technology adoption in schools. This planning guide emphasizes developing a shared school vision, ensuring resource availability, encouraging collaboration between people involved in change, providing ongoing staff development, implementing the innovation, and continually evaluating and revising. Means (1998) also presented the Large-Scale Implementation Model as a basis for the adoption of technology innovations. This model focuses on ensuring resource availability, defining purposes of technology implementation, and identifying the target population to whom the innovation will be introduced. In addition, Olson (1998) reported that effective technology implementation should include continuous evaluation of technology accessibility and utilization, the knowledge and skills of users, and technology integration.

Curricular decision making is another important issue that should be addressed in the change process. Tyler's rationale for curriculum development and decision making is an effective scheme to be considered when there is an intention to make curricular

change. According to Tyler, four major questions must be addressed when making curricular decisions: What educational purpose do we need to achieve? What experiences should we provide to accomplish these purposes? How can we best organize these learning experiences? How can we evaluate to determine if the purposes have been accomplished? (Guskey, 1994).

Furthermore, researchers have provided different policy-making models that foster school reform. Easton's model, a policy analysis model, illustrates that social environment produces stress that generates inputs of demands on and support of the political system; then the political system converts these inputs into public demands or outputs, which in turn feed back to reallocate values and resources in the society where the process begins (Wirt & Kirst, 1989). Another model is the Policy Mechanism Model, which includes: (a) mandates that embody the formal part of school in setting rules and regulations; (b) inducements such as rewarding, recognizing, and transferring authority to an individual in return for something of value; (c) capacity building, which includes the provision of professional development; and (d) system changing, which includes school restructuring (McDonnell, 1994). Curriculum coherence is also an important policy in making effective school change. In order to implement effectively a curricular innovation, purposes, instructional experiences, and evaluation must be aligned.

According to Glatthorn (1994), curriculum alignment is the process of:

Aligning the written curriculum (the one that appears in guides), the tested curriculum (the one that appears in tests), and the supported curriculum (the one that appears in textbooks and other resources) to make the taught curriculum (the one that teacher actually delivers) more effective. (p. 49)

In the process of school improvement, Glatthorn further identified four supportive elements: quality scheduling, quality learning materials, quality teacher planning, and quality professional development.

In conclusion, the literature on change has proven that many factors affect the change process. In order to facilitate a change process, change facilitators should develop a supportive school context encouraging teacher communication and cooperation, resource availability, positive policies, the development of shared vision, professional development, positive attitudes and beliefs about change, and mutual interrelationships between the school and its community. Change not only affects the school system but also the people involved in the change. Also, change was viewed as having a direct impact on individuals; therefore, individuals' perception, attitudes, and concerns must be considered, and appropriate interventions and support should be provided. Understanding change and its effect is important in facilitating a change process. The CBAM model and decision-making models should be employed when making school change.

The Theory of Concern Development

The concern development theory hypothesizes that, during a change, teachers develop three stages of concerns as they progress in implementation. Teachers experience self-oriented concerns at the beginning of an innovation implementation; then, as they progress in implementation, they develop higher task concerns; and, ultimately, with enough experience, concerns shift to the highest levels of impact concerns.

The concern theory emerged in 1969 from the research of Frances Fuller, who studied the concerns of preservice teachers about their teacher education program. Fuller conducted two studies on small groups of student teachers during the provision of a student teaching program. She also analyzed several findings of other investigators in the field of preservice and inservice teachers' concerns.

In the first study, Fuller (1969) held counseling seminars with three groups of student teachers in varying semesters of their teacher preparation program. The results of this study indicated that, in the early weeks, students tended to be more concerned with themselves continuously until they approached the end of their student teaching, when they shifted to more concern for their pupils. In the second study, Fuller collected written concerns statements of 29 student teachers from an open-ended survey. The data were collected at the beginning of the semester and some at the end of the semester. The results of this study confirmed the findings of the first one. Thus, the concepts of early and late concerns were proposed.

Moreover, Fuller (1969) documented and analyzed the findings of previous studies in prospective teachers' and beginning teachers' concerns toward teaching. These studies were of Philips (1932), Traves (1952), Gabriel (1957), Thompson (1963), Robinson and Berry (1965), Erickson and Ruud (1967), and York (1967, 1968). After combining the findings of her two studies with the findings of other investigators, Fuller proposed three phases of concern: a preteaching phase, an early teaching phase, and a late teaching phase.

In the preteaching phase (nonconcern), Fuller (1969) found that student teachers rarely reported concerns about teaching itself. They expressed their feelings in terms of their experience as pupils and as college students. Their expressions about teaching-related concerns were amorphous and vague, as reported by Fuller. Fuller concluded that this phase is a nonconcern period in teaching. In the early teaching phase (concern with self), Fuller found that the reported concerns were more self-oriented concerns. Student teachers were concerned about self-adequacy, class control, content adequacy, and supervisor evaluation. In the late teaching phase (concern with pupils), Fuller found that experienced teachers indicated concerns about pupil learning, capacity, understanding, gaining, and evaluation. Fuller concluded that these phases are developmental as student teachers progress through their teaching education. In the case of inservice teachers, these phases develop through teacher experiences with teaching. Less experienced teachers retain self concerns, whereas more experienced teachers will have more intense impact concerns.

According to Fuller (1969), the appearance and resolution of concern procedures are important in mobilizing the theory of concern development. The later concerns appear only when early concerns are resolved. In teacher education, Fuller stated, if student teachers indicate later concerns (impact on pupils), then the instructional design of education courses is appropriate and relevant to students.

Based on the theory of Fuller (1969), Hall (1985) described the dynamics of both appearance and resolution of concerns as important factors in designing teacher education, which must address the appearance and resolution of concerns if teacher

education is to succeed. He stated that concerns would appear when people are confronted with new experiences, and when these concerns are resolved by other types of experiences, more mature concerns would appear. According to Hall and George (1978), the three phases of Fuller were abstracted to self, task, and impact concerns:

It appeared to Fuller that concerns occurred in a natural sequence. Further, this sequential pattern was hypothesized to be a developmental process commonly experienced by all teachers, not unique to teachers in a particular professional education program. Fuller initially proposed a developmental model describing three phases of concern: a pre-teaching phase, an early teaching phase (concern with self), and a late teaching phase (concern with pupils). This “concerns model” was later abstracted by Fuller to “self,” “task,” and “impact,” with “impact” concerns being sub-divided into several levels. (p. 6)

In addition, Marso and Pigge (1989) stated that the theory of concern development is conceptualized as the developmental growth of teachers as they pass through sequential and accumulative stages of concerns (self, task, and impact) about becoming teachers (Fuller, 1969; Fuller & Bown, 1975).

In 1973, the Concerns-Based Adoption Model (CBAM), first introduced by Hall, Wallace, and Dossett, incorporated the three phases of concerns of Fuller (1969) and focused on inservice teachers’ concerns when confronted with an innovation. They conceptualized seven stages of concern that teachers might experience during a change process. Awareness, informational, personal, management, consequence, collaboration, and refocusing are the seven stages of concern development. Hall (1985) conceptualized the theory of concern development as follows:

The research has shown that these concerns can be developmental if the innovation is appropriate and the school principal and other change facilitators do the right types of interventions. If not, then the concerns will tend to remain aroused at self or task levels with little or no indication of movement toward arousal of impact concerns. (p. 23)

The notion behind the theory of concern development focuses on personal characteristics of teachers, their problems, their needs, and their satisfaction. The development of this theory suggests that different teachers have different concerns and need different interventions. Therefore, identifying teachers' stages of concern is necessary in order to provide appropriate support and assistance to facilitate the adoption of an innovation.

The Concerns-Based Adoption Model (CBAM)

The development of the Concerns-Based Adoption Model (CBAM) was guided by the extensive work of Frances Fuller in the area of preservice teacher concerns during the 1960s. According to Hall et al. (1979), the combination of Fuller's clinical assessment and research on the anxieties of teachers provided a basis for identifying various types of concerns of both student teachers and inservice teachers during teacher education or a change process. Building on the research of Fuller and other studies in the area of teacher concerns, Hall, Wallace, and Dossett (1973) developed the CBAM, which addresses teacher concerns and innovation, with an emphasis on individuals' concerns (Vaughan, 1997).

Since the early 1970s, the CBAM has been the major focus in research about change and teacher concerns in the Research and Development Center for Teacher Education at the University of Texas in Austin. The R&D Center has presented several publications on the different dimensions of the CBAM that are believed to facilitate change efforts: Stages of Concern About the Innovation (Hall & Rutherford, 1976), Levels of Use of the Innovation (Hall, Loucks, Rutherford, & Newlove, 1975),

Innovation Configurations (Hall & Loucks, 1978), and the Intervention Taxonomy (Hall, Zigarmi, & Hord, 1979).

Neither these particular dimensions nor those implied in the rest of the model can make the extremely complex phenomenon of change clear and simple. Yet, the concepts and dimensions have proven to be of assistance to change facilitators, have offered a viable framework for understanding, facilitating and evaluating change efforts, and have made possible the posing of new types of research questions and examinations of policy. (Heck, Stiegelbauer, Hall, & Loucks, 1981, p. 7)

According to Loucks-Horsley (1996), the CBAM is a framework having major implications for professional development in making change and in providing support for the various needs of individuals involved in the change. In change efforts, the CBAM would be an appropriate diagnostic and supportive tool in making effective change. Hord et al. (1987) reported that the Concerns-Based Adoption Model can identify the special needs of individual adopters and can provide vital support through appropriate actions.

Moreover, Sashkin and Egermeier (1992) supported the notion of the importance of using the CBAM to facilitate and monitor a change process. They believe that such a systemic approach is effective in discovering and overcoming barriers to the adoption of an innovation and that it helps users to become active, effective, engaged, and empowered in guiding change to a successful implementation. “The hypothesis underlying the CBAM model suggests that with diagnostic information the CF [change facilitator] can make decisions about how to use resources and provide interventions to individuals to facilitate the school improvement process” (Hord et al., 1987, p. 10).

This model of change, the CBAM, consists of three components: Innovation Configuration (IC); Stages of Concern (SoC); and Levels of Use (LoU). The Innovation

Configuration is used to introduce the innovation to people who are directly affected by the innovation and are expected to employ it in their daily work. It represents and illustrates different patterns of innovation use when the innovation is employed in daily practice by individual teachers (Hord et al., 1987). Communicating with individuals about the variations of use of the innovation can help teachers understand the innovation and its ideal, acceptable, and nonacceptable patterns of use. Hord (1986) described the development of the Innovation Configuration as follows:

In studies of school change, the concept of Innovation Configuration emerged as researchers were identifying innovation users and nonusers. In the field, researchers found wide variations in the ways teachers had operationalized innovations in their classrooms. The concept of Innovation Configurations was developed as a way to understand and describe the different forms that innovation took with individual users. (p.15)

Stages of Concern, a primary diagnostic concept, is the second component and the main basis of the CBAM. Research shows that concern data can be gathered through face-to-face conversation, open-ended responses, and questionnaire techniques (Hord et al., 1987). Hall and George (1978) stated, “The concept of Stages of Concern and its assessment are proving to be valuable tools for researchers, evaluators, staff developers, and change facilitators who need to know about individuals as they are involved in change” (p. 2). According to Hord et al. (1987), the Stages of Concern (SoC) is a major diagnostic tool that can identify the different kinds of teacher concerns during a change process and can enable change facilitators to decide what kinds of assistance should be provided. Hall et al. (1979) have identified seven kinds of concerns that reflect early self concerns, task concerns, and late impact concerns. According to Hord (1990), although each of the stages is distinguished from the other, they are not mutually exclusive.

Individuals may indicate concerns at all stages, but the intensity of particular stages varies with any individual as implementation progresses. These seven stages of concern are shown in Table 2.

Table 2
Stages of Concern About the Innovation

Dimensions	Stages of concern	Individual's behavior
Impact	6- Refocusing	The focus on exploration of more universal benefits from the innovation. Individual has definite ideas about alternatives to the innovation.
	5- Collaboration	The focus is on coordination and cooperation with others regarding use of innovation.
	4- Consequence	Attention focuses on impact of the innovation on students in his/her immediate sphere of influence.
Task	3- Management	Attention is focused on the processes and tasks of using the innovation and best use of resources.
Self	2- Personal	Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and the role of the innovation.
	1- Informational	A general awareness of the innovation and interest in learning more about it.
	0- Awareness	Little concern about or involvement with the innovation is indicated.

Adapted from Hall (1979)

In addition, the Levels of Use (LoU), another diagnostic concept of the CBAM, is an important tool in monitoring and evaluating the innovation implementation.

According to Hord et al. (1987), focused interviews, informal observations, and questioning are appropriate instruments for gathering data about the LoU. By collecting data about the Levels of Use, change facilitators can identify innovation users and nonusers, and thereby they can provide immediate assistance to move nonusers to a user

phase. “A prime responsibility of change facilitators is to guide the change process to a point of successful implementation. To accomplish this, the facilitator must monitor how an innovation is being used and act upon that information” (Hord et al., 1987, p. 54). Loucks, Newlove, and Hall (1975) reported that the LoU of the innovation describes an individual’s behavior in using the innovation as he or she becomes more familiar and skilled in the innovation. To identify the degree to which people implement the new practice, researchers have identified eight levels of use of the innovation (Hord et al., 1987). According to Hall et al. (1979), a combination of both SoC and LoU provides a powerful description and a profound understanding of an individual’s feelings and performance when an innovation of change is undertaken. These eight levels of use are shown in Table 3.

Table 3
Levels of Use of the Innovation

Levels of use	Individual’s behavior
VI. Renewal	The user is seeking for and exploring alternatives to the use of the innovation.
V. Integration	The user is making deliberate efforts to coordinate with others in using the innovation.
IV B. Refinement	The user is making changes to increase outcomes.
IV A. Routine	The user is making few changes and has an established pattern of use.
III. Mechanical	The user is making changes to better organize use of the innovation.
II. Preparation	The user is preparing for first use of the innovation.
I. Orientation	The user is taking action to learn more detailed information about the innovation.
0. Non-use	The user has little knowledge, no interest, and is doing nothing to be involved.

Adapted from Hord et al. (1987).

In Taking Charge of Change, Hord et al. (1987) presented several assumptions concerning change that guide the use of Concerns-Adoption Model (CBAM):

1. Change is a process, not an event. It takes time for change to actually occur, usually a period of several years. According to Hall (1981), it takes three to five years for change to happen.

2. Change is accomplished by individuals. Since change influences the role of individuals, individuals must be the center of attention in the process of the implementation of an innovation.

3. Change is an extremely personal experience and how it is perceived by individuals will affect the implementation process. Change concerns require different interventions and support for different individuals.

4. Change facilitators should anticipate resistance from individuals who are affected by the change. People sometimes find it difficult to accept new ideas and leave something they are used to doing.

5. In change, individuals progress through various stages of growth regarding their feelings and skills relating to the innovation.

6. Change is best communicated in operational terms. Change must be introduced in practical terms to be understood by individuals.

7. Interventions and support should be related to individuals first and the innovation second. Only people can make change by altering their behavior.

8. Change facilitators must work with individuals in an adaptive and systemic

way, providing vital interventions based on an individual's needs. They must be able to support, help, assist, encourage, pursued, and sometimes push individuals to change.

These underlying assumptions of change should be understood along with other factors, discussed in the change process section, to facilitate the use of the CBAM model in the process of the adoption of an innovation. Supportive school context, assumptions of change, models of curriculum decision making, and the CBAM are recommended for facilitating and monitoring the implementation of change.

In summary, research indicates that the Concerns-Based Adoption Model (CBAM) appears to be an effective tool in facilitating change and school improvement. The CBAM helps the change facilitators in making appropriate decisions about how to use resources and when to provide interventions to individuals to guide school improvement to a point of successful implementation. Individuals' concerns, including their perceptions, feelings, and attitudes, are the focus of this model. This model includes three interrelated components (IC, SoC, and LoU) that are complementary in introducing change, identifying concerns, and monitoring implementation. Also, people who are responsible for school improvement must take into consideration that only teachers can make change and that change is a process that takes a long period of time if it is to succeed. Finally, the assumptions underlying the CBAM must be considered when applying this model to a real situation.

Training and Experience as Factors Related to Stages of Concern

According to Fuller (1969), the concerns of student teachers about their preparation program develop with years of experience, from early self-concerns to later

higher concerns with pupils. She concluded that, when these early self-type concerns are resolved, the late impact concerns appear. Hall and George (1978) also indicated that the concerns of teachers about teaching tend to shift from self concerns to task concerns and ultimately to impact concerns as teachers become more experienced.

Examining the acceptance of a technology education curriculum, Rogers and Mahler (1994) surveyed 80 randomly selected industrial technology education teachers in the states of Nebraska ($N = 45$) and Idaho ($N = 35$). The analysis of teachers' Stages of Concern profiles indicated that only 19 teachers (23.7 %) had intensity peaks in one of the later four stages: management, consequence, collaboration, and refocusing (task and impact concerns). Thus, they concluded that only 19 teachers had accepted the innovation. The majority of the sample ($N = 61$) had not yet accepted the innovation because their concerns remained still in the early three stages, awareness, informational, and personal (self concerns). In addition, when they compared teachers' concerns in the two states, they found that only 8 out of 45 teachers (17.8 %) in Nebraska had accepted the technology education program, whereas 31.4 % (11 out of 35 teachers) of Idaho teachers had accepted the new program. Although the Idaho teachers had a greater acceptance rate, the majority of teachers in both states had indicated non-acceptance of the technology education curriculum.

Rogers and Mahler (1994) related this failure to accept technology education to the failure to (a) provide teachers with enough information about the innovation, (b) involve teachers in the program development, (c) provide adequate inservice training, (d) match actual needs, and (e) provide sufficient resources. Rogers and Mahler

recommended, “If technology education advocates wish to continue their pursuit of replacing traditional industrial art education with technology education, they need to provide teacher in-service training for industrial art teachers” (p. 19). The results of this study were concluded with a very small sample of only 80 industrial teachers in the two states of Nebraska ($N = 45$) and Idaho ($N = 35$).

In addition, Marso and Pigge (1989) examined the concerns of three groups of student teachers (559 sophomores, 151 about to commence, and 162 having just completed their teaching program) and three groups of inservice teachers (94 first-year teachers, 104 third-year of teaching, and 123 fifth-year teachers). They found that teachers’ concerns had significantly changed in hierarchical order through the years of experience. They concluded that teacher concerns about teaching during teacher preparation and 5 years’ teaching experience had shifted from self concerns to higher task concerns; however, impact concerns, contrary to the Fuller theory, were stable and the highest among all groups. The result of this study is consistent with the findings of three studies conducted by Adams (1982) and Marso and Pigge (1986, 1995), who all found that, with teaching experience, self concerns decreased, task concerns increased, and impact concerns did not change and were highest at all points of teaching experience.

Investigating the concerns of 124 beginning teachers toward teaching in seven school districts in Southern California, Karge, Sandlin, and Young (1993) reported that the data collected from the SoCQ indicated significant statistical differences in teachers’ concerns during the first year of teaching. They found that teachers’ concerns had

developed from self-oriented concerns to higher task concerns about teaching, with no change in the impact concerns.

Moreover, Wedman (1986) reported two studies about teachers' concerns toward educational computing and how these identified concerns changed during training. Analyzing the data collected from preassessment and postassessment of teachers' stages of concern, Wedman found that, although the inservice program did address the most intense self-oriented concerns, teachers' concerns did not progress to a higher level of impact concerns, and task concerns remained the same. He concluded that this rejection of the hypothesis of concern development was due to the nature of the innovation and to the inservice activities. The educational computing innovation (CAI, word processing, and interactive video) was complex and included many aspects of computer applications, "innovation bundle"; therefore, this study suggests that educational computing should be a unitary innovation introducing one aspect at a time, and then appropriate inservice activities, focusing on a singular computer application, should be provided.

These studies of Adams (1982), Karge et al. (1993), Marso and Pigge (1986, 1989, 1995), Rogers and Mahler (1994), and Wedman (1986) are consistent with Fuller's theory indicating that, with training and more teaching experience, teachers' self concerns decreased and task concerns increased, but impact concerns were stable. The findings of these studies about the stability of impact concerns with more teaching experience are contrary to the Fuller model of concerns development.

It is imperative that change facilitators understand that the nature of the innovation and the kinds of interventions can either foster or inhibit the development of concerns to higher levels of concerns about innovation implementation.

The research has shown that these concerns can be developmental if the innovation is appropriate and the school principal and other change facilitators do the right types of interventions. If not, then the concerns will tend to remain aroused at self or task levels with little or no indication of movement toward arousal of impact concerns. (Hall, 1985, p. 23)

Also, the change assumptions state that change is a process that takes a long time to yield higher levels of implementation.

Other studies, however, were consistent with Fuller's model about the sequential development of concerns through self-type to ultimate impact concerns. Hope (1997) found that teachers' concerns about the adoption of microcomputers in classrooms changed and developed to impact concerns when teachers' self concerns about microcomputer technology were resolved through the provision of a suitable training based on previously identified self-oriented concerns. Hope concluded that interventions such as staff development, released time, modeling, and technical support enabled teachers to move through self to impact stages of concerns, thus promoting the implementation process.

Wells and Anderson (1995), assessing teachers' concerns toward Internet integration before and after a computer-mediated communications course at West Virginia University, indicated that with computer experience teachers' internal concerns (awareness, informational, personal, and management) decreased, and external concerns (consequence, collaboration, and refocusing) consistently increased.

In addition, Hawes (1993) examined the perceptions of 143 faculty members at Keene State College about a microcomputer network. She indicated that a significant relationship existed between computer experience and the reported stages of concerns. Her dissertation revealed that individuals with more computer experience reported late stages of concerns (consequence, collaboration, and refocusing), whereas less experienced faculty expressed awareness concerns.

Goldsmith (1997) investigated the developmental levels of concerns of 240 teachers, who had attended a science-training program from 1 to 3 years, about the new Science Reform Initiative program. He found that teachers developed higher levels of concern with continued staff development. The results indicate that teachers at the first year of staff development expressed the consequence level of concerns and that at the second and third years of training, teachers were at the collaboration level. Scharmann and McLellan (1992) assessed the influence of a 1-week inservice workshop on teachers' orientation toward Science-Technology-Society (STS) instruction. They used the Stages of Concern Questionnaire to survey 13 teachers' concerns toward the use of STS instruction before and after the inservice workshop. The pretest and posttest data indicated a significant change in teachers' stages of concern. The composite SoC profiles showed a shift in concerns from lower self concerns to higher impact concerns.

In a similar study, Vaughan (1997) investigated the effect of concerns-based staff development on 79 teachers' concerns about SchoolNet technology and networking applications. He administered a pretraining Stages of Concern Questionnaire to identify teacher concerns and to design a 2-week training session based on teachers' concerns.

After the training session was completed, a posttraining Stages of Concern Questionnaire was also administered to examine the change in teachers' concerns prior to the beginning and at the end of the training session. The results of this study revealed significant differences in teachers' concerns before and after training. After the training, teachers became more involved and experienced with the innovation, and thus their concerns shifted from self concerns to higher intense task and impact concerns. Vaughan recommended that further research investigate the relationship between gender and teacher concerns as an important variable to understand how concerns may vary according to gender.

In this section, student teachers and inservice teacher concerns about teaching and the implementation of computer innovations were addressed. The research shows that, the more individuals are involved and experienced in an innovation, the more possibility for higher stages of concern to appear. Appropriate interventions that appear in the provision of effective teaching programs, professional development programs, resource availability, released time, and effective leadership would resolve early self concerns, and then late concern with pupils would arise so that change would reach its best implementation.

Gender Differences and Stages of Concern

The research on the relationships of demographic variables and individuals' peak stages of concerns is not conclusive and lacks the interest of many researchers to be addressed as distinctive variables in the studies of teachers' concerns about innovations. Comparing stages of concern data with demographic data, Hall et al. (1979) reported:

It has been of interest to us, in our research to date, that there have been no outstanding relationships between standard demographic variables and concerns data. Rather, as our research unfolds, there is increasing support for the hypothesis that "interventions" and "conditions" associated with implementation effort are more critical variables than age, sex, teaching experience, etc". (p. 52)

However, in this section, a review of literature about gender in particular and other demographic variables are addressed in the sense of making connections to teachers' stages of concern.

Cicchelli and Baecher (1985), investigating the concerns of 78 teachers (47 in a high school, 7 in a junior high school, and 24 in an elementary school) toward using microcomputers in the classroom, found that males were significantly higher on consequence concerns, elementary female teachers indicated high awareness concerns, and elementary male scores at the consequence stage were significantly higher than females. In this study, the number of participating males was 20, with females numbering 58. If the sample had an equal number of both genders, it might yield different findings.

Marso and Pigge (1989), examining the concerns of 220 males and 950 females about teaching, reported that females had higher impact concerns about pupils and more positive attitude toward teaching than did males. Assessing the concerns of 60 teachers

about teaching over a 7-year period from the commencement of teacher preparation through 5 years of teaching, Marso and Pigge (1995) also found that female teachers were more concerned about their students than were the male teachers. Although only 6 males were involved in this study, in prior research with larger samples (Marso & Pigge, 1987, 1989), male teachers expressed lower impact concerns than did female teachers. In addition, Wells and Anderson (1995) found that, after a course in Internet applications, female teachers expressed higher consequence and refocusing concerns toward Internet integration than did males.

According to Hawes (1993), examining the concerns of the Keene State College faculty members about the implementation of a microcomputer network, no significant relationship existed between the reported stages of concerns of the 140 university instructors and other variables, such as gender, disciplines, and age. Toms (1997), however, found significant correlation between gender and individuals' peak stages of concerns toward the adoption of the Internet in instruction. She found that females tend to have higher stages of concerns than did males. She concluded that, when other variables, such as rank, age, and national origin were controlled, gender was significantly correlated to peak stages of concern.

Moreover, in examining factors that might affect teachers' stages of concerns, Rogers and Mahler (1994) found no significant difference between teachers with different age levels, years of teaching experience, educational levels, and type of school. However, the results revealed a significant difference between teachers with regard to their school size. They found that teachers in medium-sized schools showed a greater

acceptance rate and expressed higher task and impact concerns than did teachers in small- or large-sized schools. Investigating the relationship between teacher stages of concerns and teaching fields, Marso and Pigge (1989) found that special education teachers had higher impact concerns than did secondary and specialized area teachers.

In addition, Marso and Pigge (1986) examined the relationships between the concerns and attitudes of 581 student teachers during their teacher preparation program at Bowling Green State University and some selected student characteristics, such as grade level, gender, teaching field, level of father's education, and time of decision to become a teacher. This study revealed the following:

1. Student teachers planning to teach in the secondary grades tended to have less positive attitudes and less concern about teaching than those planning to teach in the elementary grades.
2. Females reported higher impact concerns and more positive attitudes than did males.
3. Elementary teachers reported the most positive attitudes, with lowest concern reported by secondary teachers and lowest anxiety reported by special education teachers. Specialized area teachers reported the highest anxiety and the most concerns about teaching.
4. Students whose fathers had less education were more anxious about teaching.
5. Student teachers who had decided very early to be teachers tended to have more positive attitudes, low anxiety, and higher impact concerns.

The preceding studies revealed significant findings on the relationships of teacher concerns and the personal characteristics of teachers. Not only teacher concerns about computer innovations, but also student teachers' concerns about teaching were investigated. Findings indicated that the concerns of prospective teachers and inservice teachers about education and computer innovations vary by gender, school size, teaching field, grade level, level of father's education, and time of decision to become a teacher. Therefore, addressing demographic variables such as gender, age, school district location, years of teaching experience, and teacher level of education in this study can provide an understanding and explanation about how teachers' stages of concern about the implementation of the IT project in Kuwait might vary.

Summary

In this chapter, the literature on change has proven that many factors affect the change process. Change is viewed as a direct impact on individuals; therefore, individuals' perception, attitudes, concerns must be considered, and appropriate interventions and support should be provided. Understanding change and its effect is important in facilitating a change process. The CBAM model has been proven to be an appropriate tool in identifying concerns and in providing effective interventions. Also, the concerns development theory suggests that different teachers have different concerns and need different interventions. Therefore, identifying teachers' stages of concern is of great importance in order to provide appropriate support and assistance to facilitate the adoption of an innovation.

Moreover, the research shows that, the more individuals are involved and experienced in an innovation, the more possibility for higher stages of concern to appear. However, the nature of the innovation and types of intervention could positively or negatively affect the appearance of the desirable impact concerns that lead to higher levels of innovation implementation. Chapter 3 describes the research design and methodology employed in data collection as well as other details important for understanding how this study was conducted.

CHAPTER 3

METHODOLOGY

Kuwait has mandated the adoption of a computer education curriculum in all intermediate schools. This project, called the Kuwait Intermediate School Information Technology Project (KISITP), is an ongoing implementation that started in some schools in the 1994-1995 school year and will be implemented fully in all intermediate schools in the academic year 2002-2003. The Ministry of Education has recruited specialized computer teachers to teach this curriculum to students and has provided them with staff development. New textbooks, teacher guides, and classroom materials have been adopted for each grade level to accommodate the teaching and learning of the new curriculum. In the process of computer education implementation, change is best understood by uncovering teachers' concerns about this innovation. According to Hord et al. (1987), identifying the concerns of individual adopters is the most important factor in facilitating the change process.

This relational study was conducted to identify concerns that teachers experience when implementing the Information Technology curriculum (IT) in the middle schools in Kuwait. Also, it investigated the relationships between teacher stages of concern and factors such as experience and gender. The stages of concern survey was distributed to teachers who either were teaching or were at the beginning of teaching the Information Technology curriculum in Kuwaiti intermediate schools.

This chapter, the operational part of the research, describes how, where, and when the study was conducted and includes a description of the subjects involved in the study, procedures for collecting data, and statistical analyses employed. This chapter is divided into the following sections: (a) Population and Sampling; (b) Instrumentation; (c) Research Design and Data Collection; (d) Timeline; and (e) Data Analysis.

Population and Sample Description

This study was conducted in the State of Kuwait in all intermediate schools participating in the Kuwait Intermediate Schools Information Technology Project (KISIT). The number of participating schools was 162, all of which are implementing the Information Technology. Because the primary purpose of this study was to investigate teachers' concerns toward the implementation of the Information Technology curriculum, all involved teachers were requested to participate in the survey.

The target population was all computer teachers in the intermediate schools in Kuwait, consisting of 312 teachers (164 females and 148 males). A list of teachers' names, their school districts, and their schools was obtained from the Ministry of Education in Kuwait. This population of teachers was distributed over five school districts: Alasemah, Hawali, Alfrwaniyah, Alahmadi, and Aljahra. Table 4 illustrates teacher population and school distribution in Kuwait.

Table 4
Number of Participating Schools and Teachers

District	Female schools		Male schools		Female teachers		Male teachers	
	Total	Return	Total	Return	Total	Return	Total	Return
Alasemah	20	18	14	10	42	30	29	20
Hawali	20	17	19	12	40	35	36	27
Alfarwaniyah	14	11	13	9	23	19	25	15
Alahmadi	18	13	17	14	35	27	26	24
Aljahra	14	14	13	13	24	22	32	29
Total	86	73	76	58	164	133	148	115

In this study, high school participation was obtained; 80.8% of the schools responded to the survey. Also, a return rate of 83.9 % was obtained when the SoC questionnaires were distributed. This return yielded a total of 262 questionnaires, 14 of which were incomplete. The 14 incomplete questionnaires were eliminated, leaving a total response of 248 participants, with a rate of 79.4 %. This sample of the 248 respondents consists of 133 females and 115 males, as shown in Table 5.

Table 5
Response Rate of the Sample

Gender	Population	Sample	Percentage
Female teachers	164	133	81.0%
Male teachers	148	115	77.7%
Total	312	248	79.4%

This sample of 248 respondents consisted of 50 teachers (30 females and 20 males) from Alasemah district; 62 (35 females and 27 males) from Hawali district; 34 (19 females and 15 males) from Alfarwaniyah district; 51 (27 females and 24 males) from Alahmadi district; and 51 (22 females and 29 males) from Aljahra district. Also, the sample was categorized in four groups according to participants' years of experience in

teaching the IT curriculum (see Table 6). Fifty-one teachers had 1-year experience; 80 teachers, 2 years of experience; 51 teachers, 3 years of experience; and 66 teachers, 4 to 6 years of teaching experience.

Table 6
Four Groups of Teaching Experience

Group	Frequency	Percentage
One year	51	20.6
Two years	80	32.3
Three years	51	20.6
Four – six years	66	26.6
Total	248	100.0

The participants in this study were all intermediate school teachers who volunteered to respond to the Stages of Concern Questionnaire. This sample was voluntary in nature, based on teacher willingness to participate. This sample was convenient and met the interest of identifying teachers' concerns about the implementation of the Information Technology curriculum. This sample was found to be appropriate for collecting data, and the researcher was able to develop an understanding of how teachers feel about teaching this new curriculum. Moreover, in terms of human subject protection, an approval from the Institutional Review Board at the University of North Texas was obtained (see Appendix B).

Instrumentation

The Stages of Concern (SoC), one dimension of the Concern-Based Adoption Model (CBAM), was developed to identify the concerns of individuals during the change process (Hord et al., 1987). The Stages of Concern dimension attempts to describe the personal aspects that are involved in the process of an innovation implementation (Hall &

George, 1978). According to Hord et al., the research on concerns has identified seven stages of concern reflecting self, task, and impact concerns that individual users encounter when implementing an innovation. Self concerns consist of awareness, information, and personal; task concern is management; and impact concerns include consequence, collaboration, and refocusing. Each stage of these seven subscale concerns is represented by five statements (see Appendix C) on a 35-item Stages of Concern Questionnaire (SoCQ) (see Appendix A). The SoCQ emerged from Hall's CBAM research, which hypothesizes that teacher concerns develop through seven stages as they accept an innovation (Rogers, 1992).

For the purpose of identifying teachers' concerns about the implementation of the Information Technology curriculum in Kuwaiti intermediate schools, the Stages of Concern Questionnaire (SoCQ), "a quick-scoring pencil-and-paper questionnaire" (Hall et al., 1979, p. 9), was used. It consists of 35 statements that reflect a respondent's concern and attitudes toward the adoption of an innovation, a new program, or instructional approach.

Respondents were asked to circle a number between 0 to 7 on a Likert-type scale to reflect their present concerns about their involvement or potential involvement in teaching the Information Technology curriculum. The number 0 means that the given statement is irrelevant as a concern at this time; the number 1 reflects an untrue concern statement; the number 4 indicates that the given statement is presently somewhat a true concern; and the number 7 represents a very true concern at this time. However, numbers in between exhibit varying degrees of intensity toward each statement of concern.

Hall et al. (1979) had carefully tested the Stages of Concern Questionnaire's reliability and validity:

During the two and one-half years of research related to measuring Stages Of Concern About the Innovation, the 35-item Stages of Concern Questionnaire was developed. In a one-week test-retest study, stage score correlations ranged from 0.65 to 0.85 with four of the seven correlations being above 0.80. Estimates of internal consistency (alpha coefficients) ranged from 0.64 to 0.83 with six of the seven coefficients being above 0.70. A series of validity studies [factor analysis, known-group differences, predictive, etc. among these] was conducted, all of which provided increased confidence that the SoC Questionnaire measures the hypothesized Stages of Concern. (p. 20)

Because the participants of this study are Kuwaiti teachers speaking Arabic, Kalil Toufaily, an official translator in the Embassy of Kuwait in Washington, D.C, translated the SoCQ into the Arabic language (see Appendix D). In terms of the reliability of the Arabic version, the questionnaire was piloted to some Arabic students at the University of North Texas in Denton. Based on student understanding of the items, the questionnaire was revised four times. Afterwards, the questionnaire was given to a different sample of Arabic students. A total of 20 students responded to the piloted survey, and through use of the SPSS statistical software, the reliability was calculated (alpha coefficient = .91, $N = 20$).

To ensure the validity of the Arabic questionnaire, the procedure of back-translation was applied. The original questionnaire, the English version, was translated into Arabic, and the Arabic version was translated back to English (see Appendix E). Then the content in the two English versions was compared to test the validity of the new instrument, the Arabic version. After careful review and comparison, the content in the two versions was found compatible, and no changes were made in the new instrument.

In addition, a demographic survey (see Appendix F) was included with the Stages of Concern Questionnaire to gather background information about the respondents. The survey was designed to identify variables about participants that could be compared to the reported concerns of teachers. It includes 10 straightforward questions that address computer experience, gender, training, age, and grade level.

Research Design and Data Collection

This relational study was conducted to identify concerns that teachers experienced when implementing the Information Technology curriculum in the middle schools in Kuwait. Also, it investigated the relationships between teacher stages of concern and other factors, such as experience and gender. In this study, three variables were examined. The relationships between two independent variables (experience and gender) and seven dependent variables (awareness, informational, personal, management, consequence, collaboration, and refocusing stages of concern) were tested. In addition, all gathered data were targeted to best answer the following research questions:

1. What are teachers' concerns toward the implementation of the Information Technology curriculum in the intermediate schools in Kuwait?
2. Are there significant relationships between teachers' concerns and other factors such as experience and gender?

Data collection was based on the delivered survey. A two-part instrument was used in collecting data, the Stages of Concerns Questionnaire (35 items) and a demographic survey (10 questions). Answering these surveys should not take more than 20 minutes. The Stages of Concern Questionnaire, demographic information sheet,

and a cover letter (see Appendix G) were distributed to teachers who either were teaching or were at the beginning of teaching the IT curriculum.

Since the Stages of Concerns Questionnaire was developed by the Texas Research and Development Center at the University of Texas at Austin, a written permission was obtained (see Appendix H). In order to gain site (schools) access, permission from the Ministry of Education (MOE) in Kuwait was obtained. Five permission letters (see Appendix I) were provided by the Educational Research Department in the MOE in order to distribute the survey through school districts. School districts, in turn, provided the researcher with facilitating letters (see Appendix J) addressed to each school's principal, and they agreed to distribute the survey instrument through each school's daily mail. Each school district mailed the questionnaire to each participating school in its district, and then each school principal distributed the questionnaire among IT teachers. When teachers had responded to the questionnaire, they mailed it back to the school district. The researcher then collected the questionnaires from all school districts.

The survey was delivered to schools by districts' mails on Saturday, Sunday, Monday, Tuesday, and Wednesday for 2 weeks. The returned responses were collected from the five school districts on Mondays and Wednesdays until Spring Break. After Spring Break, followup letters and additional questionnaires were mailed to schools that did not return the survey. Also, telephone calls were made to remind schools about the importance of filling out and returning the survey. The process of data collection took two periods. The first period started (before Spring Break) on December 11, 1999, and

finished on January 5, 2000. The second period, a followup, started (after Spring Break) on February 5, 2000 and finished on February 23, 2000.

Moreover, two cover letters were sent. One letter sent to the schools' principals-- along with supportive letters from the districts, including the purpose of the survey-- asking principals to encourage teachers to participate in the study and asking them to collect and return the survey to the districts. A second cover letter, attached to the survey, was sent to individual teachers. This letter explained the purpose of the study, ensured confidentiality, discussed the importance of teachers' inputs to the survey, discussed the benefits of participating, and included instructions for answering the survey.

In this study, participants were informed that their participation was voluntary and that could discontinue participation at any time. Participants were informed that their nonparticipation would not affect them. Participants were informed that all information they provided was confidential and that the researcher would be the only one who could access this information. In order to preserve anonymity, participants did not have to write their names in the survey; the name was optional. Also, all materials used in collecting the data would be destroyed at the end of the study.

In terms of benefits, teachers were informed that their responses to the questionnaire would reveal their present concerns about teaching Information Technology. When these concerns are identified, appropriate interventions will be suggested by the researcher and presented to people in charge of the implementation of

the Information Technology. This study did not involve any risk to the participants at any time.

Timeline

On November 28, 1999, MOE permission was obtained. The districts' facilitating letters were received from November 30 to December 6, 1999. The survey was distributed in two periods. The first period started (before Spring Break) on December 11, 1999, and finished on January 5, 2000. The second period, a followup, started (after Spring Break) on February 5, 2000, and finished on February 23, 2000. The survey was delivered to schools on Saturday, Sunday, Monday, Tuesday, and Wednesday, and picked up from school districts on Monday and Wednesday each week until all returned responses were collected. Those who did not complete the survey within 3 weeks were contacted through delivery of another survey. The time for data collection was 2 months and half, and after this time no returned surveys were received.

Data Analysis

In this study, both descriptive and inferential statistics were used. The SoCQ manual for data analysis and interpretation (see Appendix K) served the primary need of describing teachers' concerns about the innovation. This manual, prepared by Hall et al. (1979), includes raw scale scores, raw score totals, a percentile table, and individual SoC profiles. The data were analyzed with regard to the two research questions.

For the purpose of answering question 1--What are teachers' concerns toward the implementation of Information Technology curriculum in the intermediate schools in Kuwait?--three procedures of SoCQ data analysis were employed. First, the analysis of

group profiles, including the total sample profile, females' and males' profiles, and four profiles of teaching experience groups, was applied. Second, the analysis of individuals' peak concerns was used to identify individual teachers' levels of concerns (self concerns, task concern, and impact concerns). Third, the analysis of first highest and second highest stages of concern was applied to look for possible patterns of concerns and to gain additional insights into the developmental concerns among teachers in relation to their teaching experience.

Furthermore, when answering question 2--Are there significant relationships between teachers' concerns and other factors, such as experience and gender?--multivariate analysis MANOVA was used. MANOVA served the need of testing the relationships between two independent variables (gender and experience) and seven dependent variables (awareness, informational, personal, management, consequence, collaboration, and refocusing).

Finally, this study used a quantitative instrument in data collection. The SoCQ was used to examine teachers' perceptions about the Information Technology curriculum. The demographic survey gathered information about the factors related to teachers' reported stages of concern. In data analysis, the SoCQ manual and MANOVA were applied to answer the research questions and to make fundamental interpretations about individuals' and groups' concerns.

CHAPTER 4

DATA ANALYSIS AND RESULTS

The Kuwait Intermediate School Information Technology Project (KISITP) is an ongoing implementation of the Information Technology curriculum (IT) that started in some schools in the 1994-1995 school year and will be implemented fully in all intermediate schools in the academic year 2002-2003. A descriptive and relational study was then conducted to identify concerns that teachers experienced when implementing the Information Technology curriculum in the middle schools in Kuwait. It was designed to investigate the relationships between teacher stages of concern and factors, such as gender and experience, and to look for developmental stages of concern.

The stages of concern (SoC) survey was delivered to 312 teachers who either were teaching or will teach the Information Technology curriculum in all 162 Kuwaiti intermediate schools in the five school districts, Alasemah, Hawali, Alfarwaniyah, Alahmadi, and Aljahra. A return rate of 83.9 % was obtained when the SoC questionnaires were distributed. This return yielded a total of 262 questionnaires, 14 of which were incomplete. The 14 incomplete questionnaires were eliminated, for a total response of 248 participants with a rate of 79.4 %. This sample of the 248 respondents consisted of 133 females and 115 males.

The respondents had varying years of experience with the innovation, the Information Technology curriculum. They were distributed into 6 groups, 1-year experienced teachers, 2-year experienced teachers, 3-year experienced teachers, 4-year

experienced teachers, 5-year experienced teachers, and 6-year experienced teachers. The data indicated that there were 51 teachers with 1-year of teaching experience, 80 teachers with 2-years of experience, 51 teachers with 3-year experience, 38 teachers with 4-year experience, 16 teachers of 5-years of experience, and 12 teachers with 6-years of teaching experience. The results are summarized in Table 7.

Table 7
Teaching Experience

District	1 year	2 years	3 years	4 years	5 years	6 years	Total
Alasemah							
F	8	6	5	3	3	5	30
M	3	5	2	7	1	2	20
Hawali							
F	12	7	7	4	4	1	35
M	8	11	4	2	1	1	27
Alfrwania							
F	1	8	7	1	1	1	19
M	3	9	1	1	1	0	15
Alahmadi							
F	8	6	5	3	4	1	27
M	3	7	9	4	0	1	24
Aljahra							
F	4	5	5	8	0	0	22
M	1	16	6	5	1	0	29
Subtotal							
F	33	32	29	19	12	8	133
M	18	48	22	19	4	4	115
Total	51	80	51	38	16	12	248

F = Female and M = Male.

As can be seen from Table 7, the teaching experience groups were unequal, and such large differences between groups may weaken the data analysis. Thus, the researcher made a decision about equalizing the groups. Due to the empty cells and low cell count, the 4-year, 5-year, and the 6-year experience groups were combined into one

group representing teachers who had 4 to 6 years of teaching experience. Thereby, the data were analyzed according to the following groups: (a) 51 teachers who had just started teaching the Information Technology (IT) curriculum; (b) 80 teachers with 2 years of teaching experience; (c) 51 teachers with 3 years of experience; and (e) 66 teachers who had 4, 5, or 6 years of teaching the IT curriculum. Table 6 in chapter 3 summarizes these four groups with the consideration of their percentages in the total number of the sample.

Results

The data of this study were analyzed in relation to each research question. This section includes interpretation of Stages of Concern Questionnaire data and quantitative analysis of stages of concern using MANOVA.

Research question 1

What are teachers' concerns toward the implementation of the Information Technology curriculum in the intermediate schools in Kuwait?

Participants' responses on the Stages of Concern Questionnaire (SoC) (see Appendix A) were analyzed to identify teachers' levels of concerns. Item responses in each stage were summed to represent total raw scores, and these raw scores were converted to percentile scores. The Manual for Use of the Stages of Concern Questionnaire documents percentile scores (see Appendix L). The percentile score means were used to represent intense concerns for all seven stages of concern. In order to derive meanings of the concerns that teachers experienced during the implementation

of the IT curriculum, three procedures for interpreting Stages of Concern Questionnaire data were applied.

First, group profile analysis was used to describe the concerns of the total sample of teachers and the subgroups, as categorized by gender and experience. The percentile score means (relative intensity peaks) were used to design a graphic composite profile for all 248 teachers, a graphical profile for gender, and a graphical profile for experience.

Second, the analysis of peak concern, most intense concern, was employed to identify each individual's highest concern. According to their peak concern, individuals were grouped into the three levels of concerns (self concerns, task concern, and impact concerns), and frequency and percentage of individuals in each level were calculated.

Third, for additional insight, the first and the second highest stages of concern for all respondents were analyzed for possible patterns. According to Hall et al. (1979), identifying the second highest stage of concerns along with the peak stage can develop a profound understanding of the dynamics of concerns.

Analysis of groups' profiles. According to Hall et al. (1979), a profile analysis can develop a rich clinical picture of both individual and group data by examining and interpreting high and low percentile scores for all seven stages of concerns. Analysis of teacher profiles provided a complete description of the relative intensity of the seven stages of concerns that teachers experienced during the implementation of the IT curriculum. In this section, several profile interpretations were made: total sample profile, female and male profiles, and four experience group profiles.

First, analysis of the sample profile (see Figure 1) showed that the total sample's relative peak concern (78.02) was related to collaboration. The profile revealed almost similar secondary peaks at personal (75.08), refocusing (74.84), and informational (74.77) stages. The profile also indicated that these teachers had low concerns related to management (47.65) and awareness (47.81).

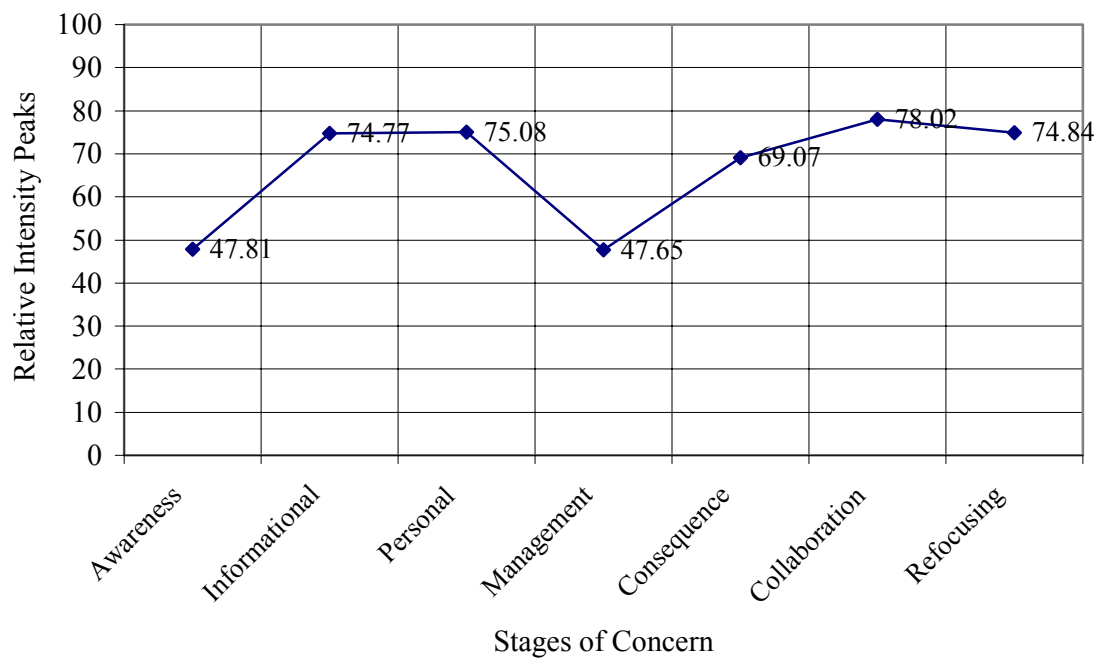


Figure 1. SoC profile of the total study sample.

This profile revealed that the sample represented users who were concerned about working with other teachers to share ideas and gather information about the innovation (IT) requirements and its effect on them. Teachers were also found to be interested in and involved in the innovation, and had minimal concern about managing use of the innovation.

Second, the teachers' group profile was analyzed in relation to gender (see Figure 2). Females' profile revealed peak concern (78.05) at the collaboration stage, with a secondary peak (77.04) at the informational stage, and with lowest awareness concern (50.63). The highest concern (77.98) of males was at the collaboration stage; the second highest (77.61) was at the refocusing stage; and the least intense concern (43.54) was at the management stage.

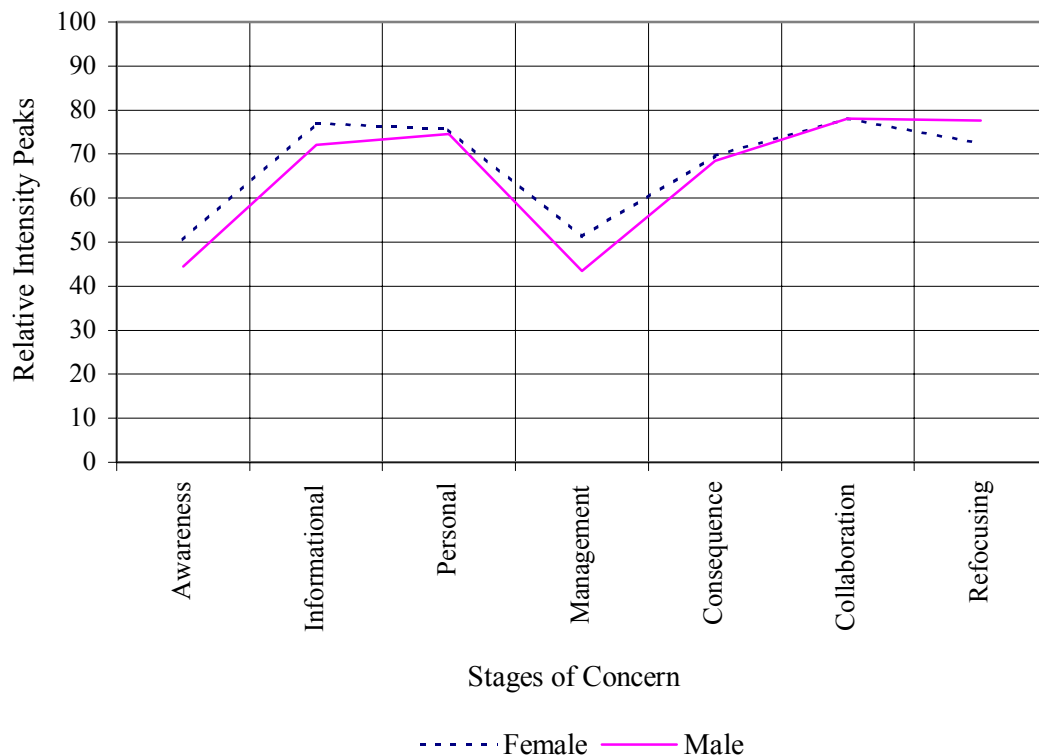


Figure 2. SoC graphical profiles of female and male teacher.

The analysis of concern group profile in relation to gender indicated that the highest concern of both female and male teachers toward the implementation of the Information Technology curriculum was at the collaboration stage. The general pattern

of the two groups appears similar. Females' and males' percentile score means are summarized in Table 8.

Table 8
Females' and Males' Percentile Means

Stage	Aware	Information	Personal	Manage	Consequence	Collaboration	Refocusing
Female	50.63	77.04	75.55	51.32	69.64	78.05	72.45
Male	44.54	72.16	74.54	43.4	68.42	77.98	77.61

Third, the group profile was analyzed according to teachers' years of experience with the innovation. The high and low concerns of the four experience groups (1-year, 2-year, 3-year, and 4- 6- year groups) were identified, and a graphical profile was developed (see Figure 3). The group profile analysis indicated that teachers with 1 year of teaching experience had primary concern at the personal stage and secondary concern at the informational stage; they had both types of self concerns and low awareness concern. This combination of concerns indicates that teachers with 1 year of experience were interested in learning more information about their roles in the adoption of the innovation. Teachers with 2 years of teaching experience developed a primary concern at the collaboration stage and secondary concern at the personal stage, with low awareness concern, suggesting that they were interested in discussing their personal concerns with other users. Teachers with 3 years of experience reported peak concern at the collaboration stage and secondary concern at refocusing, with low management concern. Also, high collaboration concern and refocusing concern, with low management concern, were revealed by teachers with 4 to 6 years of experience. Both groups, teachers with three years of experience and teachers of four to six years of experience, indicated similar

concerns, suggesting that both groups were comfortable with the use of innovation and had ideas about improving the innovation that they wanted to share with other users.

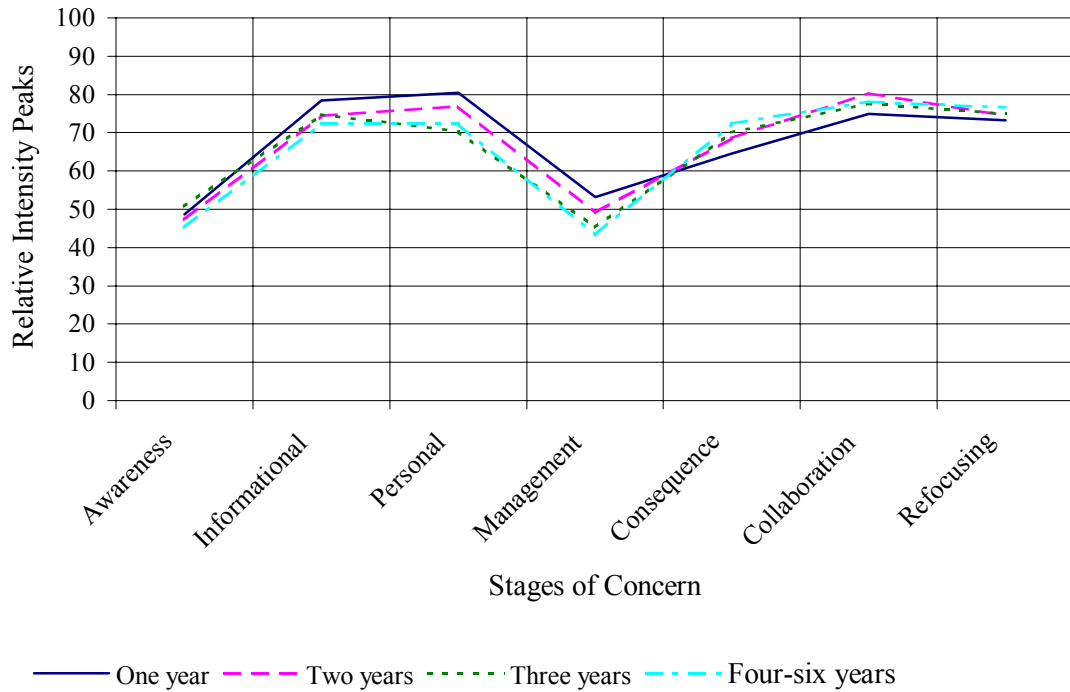


Figure 3. Teachers’ graphical profiles in relation to their experience.

The analysis of group profile in relation to years of experience indicated that teachers with more teaching experience developed concerns at impact levels, whereas teachers with the least teaching experience developed self-oriented concerns. This finding supports the theory of concerns development by Fuller (1969), stating that, with more experience, teachers develop higher levels of impact concerns, concerns about pupils. Table 9 summarizes teachers’ concerns in relation to their years of experience.

Table 9
Teachers' Percentile Means in Relation to Their Experience

Stage	Aware	Inform	Personal	Manage	Conseq	Collab	Refocus
One year	48.59	78.37*	80.41**	53.22	64.59	74.88	73.24
Two years	47.36	74.49	76.92*	49.16	68.50	80.25**	74.34
Three years	50.88	74.71	70.41	45.37	70.10	77.55**	74.90*
Four-six years	45.36	72.39	72.33	43.26	72.44	78.09**	76.65*

** Primary concern; * Secondary concern.

Analysis of individuals' peak concerns. Individuals' concerns analysis (see Table 10) indicated that 92 of the respondents (37.0%) had intensity peaks at the self-concern stages (awareness, informational, and personal); 9 respondents (3.6%) reported task concern (management); and 147 respondents (59.2%) had intensity peaks at the impact-concern stages (consequence, collaboration, and refocusing).

Table 10
Frequency and Percentage of Individuals' Peak Concerns

Soc level	Frequency	Percentage
Self concerns	92	37.0
Awareness	11	4.4
Informational	37	14.9
Personal	44	17.7
Task concern	9	3.6
Management	9	3.6
Impact concerns	147	59.2
Consequence	15	6.0
Collaboration	68	27.4
Refocusing	64	25.8

N = 248

According to Hall et al. (1979) and Rogers (1992), teachers who are at the four late stages of concerns (management, consequence, collaboration, and refocusing) are

users having successfully adopted the educational innovation. However, teachers reporting self-oriented concerns (awareness, informational, and personal) are nonusers who have not yet accepted the innovation. In this study, 156 of the total sample size ($N = 248$) had concerns at the four later stages of concerns (management, consequence, collaboration, refocusing). Therefore, the analysis of peak concerns of individuals revealed that the majority of respondents (62.9%) had successfully adopted the Information Technology curriculum, and they are actively engaged in establishing the best use of the innovation.

Analysis of first highest and second highest concerns. In this process, teachers' first highest and second highest concerns were identified, and these concerns were then placed in a 3 x 3 matrix, representing nine cells of self-self concerns, self-task concerns, self-impact concerns, task-self concerns, task-task concerns, task-impact concerns, impact-self concerns, impact-task concerns, and impact-impact concerns. Each teacher's profile was classified by that teacher's first and second concern. The number of teachers was included in each cell, and the matrix was refined to establish patterns of concerns.

When analyzing the first concern along with the second, three patterns of concerns were developed among teachers: self-concern pattern, representing teachers with both first and second peaks at the self-concern stages; mixed-concern pattern, representing teachers with mixed concerns of two different stages (self-task, self-impact, task-self, task-impact, impact-self, and impact-task); and impact-concern pattern, including only teachers with both first and second peaks at the impact levels.

Table 11
The First Highest SoC in Relation to the Second Highest SoC

First highest concern	Second highest concern				
	Self	Task	Impact	Total	Percentage
Self	34	11	47	92	37.1
Task	5	0	4	9	3.6
Impact	62	7	78	147	59.3
Total	101	18	129	248	100.0

As shown in Table 11, of the teachers, 34 (13.7) represented the self-concern pattern; 136 teachers (54.8) were in the mixed-concern level; and 78 teachers (31.4) experienced the impact-concern pattern. The data indicated that the majority of the respondents were mixed-concern users who had their first or second peak concern at either impact ($1^{\text{st}} = 62$ and $2^{\text{nd}} = 47$) or task ($1^{\text{st}} = 5$ and $2^{\text{nd}} = 11$) levels and either self-oriented or task-oriented concerns. These self-oriented and task-oriented concerns need to be resolved in order to move this majority to the impact-concern user level.

Analysis of the first and second highest stages of concern in relation to teachers' experience with the innovation is needed to understand how teachers developed these concerns. Table 12 shows the percentage of teachers in each pattern of concern according to their years of experience. The self-concern pattern included 10 teachers out of 51 with 1 year of experience; 8 out of 80 with 2 years of experience; 8 out of 51 teachers with 3 years of experience; and 8 out of 66 teachers with 4 to 6 years of experience. With the consideration to their groups' populations, teachers with 1 year of experience were the highest in the self-concern user pattern.

Table 12
Patterns of Concern Related to Teacher Experience

Teaching experience	Self-concern user			Mixed-concern user		Impact-concern user	
	N	f	%	f	%	f	%
One year	51	10	19.6	31	60.7	10	19.6
Two years	80	8	10.0	51	63.7	21	26.2
Three years	51	8	15.6	26	50.9	17	33.3
Four-six years	66	8	12.1	28	42.4	30	45.4

The mixed-concern user pattern included 31 of 51 teachers with 1 year of experience; 51 of 80 teachers with 2 years of experience; 26 of 51 teachers with 3 years of experience; and 28 of 66 teachers with 4 to 6 years of experience. With respect to their groups' populations, the majority of the mixed-concern users were teachers with two years of experience. The impact-concern user pattern represented 10 of 51 teachers of 1-year experience; 21 of 80 teachers with 2 years of experience; 17 of 51 teachers with 3 years of experience; and 30 of 66 teachers with 4 to 6 years of experience. Teachers with 4 to 6 years of experience were the majority in the impact-concern user pattern.

Furthermore, another trend was found among these three concern patterns when they were analyzed independently (column analysis). Data analysis indicated that the self-concern pattern was highest in year 1 of experience and stable after 2 years of experience. The mixed-concern pattern was highest in years 1 and 2 then decreased after year 2. The impact-concern pattern increased with each year of experience. These findings are consistent with the theory of concern development because it was evident that the more teachers were experienced with teaching the Information Technology curriculum, the higher levels of concerns were reported at the impact stages.

In conclusion, three analysis techniques were employed to identify concerns that teachers experienced during the implementation of the Information Technology curriculum. First, the analysis of the group profile indicated that the sample of this study represented users who were concerned about working with other teachers to share ideas and gather information about the innovation (IT) requirements and its effect on them. Teachers were also found to be interested in and involved in the innovation and to have minimal concern about managing use of the innovation. The analysis of the group profile in relation to gender indicated that females had high concerns related to the collaboration and informational stage, with low awareness concern, whereas males reported high collaboration and refocusing concerns, with minimal management concern. Moreover, the analysis of the group profile in relation to teachers' years of experience with the innovation indicated that teachers with more teaching experience developed higher levels of concerns at the impact stage; teachers with less teaching experience reported lower self or management concerns. This finding supports the theory of concerns development by Fuller (1969), stating that, with more experience, teachers develop higher levels of impact concerns, concerns about pupils.

Second, the analysis of individuals' peak concerns indicated that 92 teachers reported self concerns, 9 teachers had task concern, and 147 teachers were at the impact-concern levels. Therefore, 156 of the total sample size ($N = 248$) had concerns at the four late stages of concerns (management, consequence, collaboration, refocusing). Analysis of individuals' concerns revealed that the majority of respondents in this study had successfully adopted the Information Technology curriculum.

Third, analysis of the first highest and second highest stage of concerns revealed three patterns of concerns: the self-concern user pattern, representing teachers with both first and second peaks at the self-concern stages; the mixed-concern user pattern, representing teachers with mixed concerns of two different stages (self-task, self-impact, task-self, task-impact, impact-self, and impact-task); and the impact-concern user pattern, which included teachers with both primary and second peaks at the impact levels. The majority of teachers were found to be mixed-concern users. However, the majority of teachers in the impact-concern pattern were teachers with the highest teaching experience. Moreover, this finding is consistent with the theory of concerns development.

Research question 2

Are there significant relationships between teachers' stages of concern and other factors such as gender and experience?

In order to answer the second research question, multivariate analysis of variance (MANOVA) procedure was used to determine whether statistically significant relationships existed between stages of concerns and gender. Also, MANOVA was employed to determine whether statistically significant mean differences existed between teachers with varying years of experience. According to Tabachnick and Fidell (1996), with several dependent variables, MANOVA is more powerful than separate ANOVAs because MANOVA tests the effect of independent variables on a combination of dependent variables, whereas ANOVA tests the effect on only a single dependent variable at a time.

The Wilks Lambda statistic, the most frequently used test from MANOVA, was used to determine significant relationships. The data were analyzed at the .05 level of significance. For MANOVA results that showed statistical significant relationships between the independent variables (gender and experience) and the dependent variables (awareness, informational, personal, management, consequence, collaboration, and refocusing stages), a followup one-way analysis of variance (ANOVA) was employed. The ANOVA examined whether mean differences among teachers were statistically significant at each stage.

The total raw scores for each of the seven levels of the Stages of Concern Questionnaire were entered in the SPSS (statistical software) as subjects' scores for each stage of concerns (dependent variables), and then tests of significance were applied. Hall et al. (1979) strongly recommended the use of raw scores of stages of concern in statistical analyses instead of using the percentile scores.

The MANOVA indicated significant mean differences between females and males on the management and refocusing stages. No significant mean differences were found among the four experience groups (1 year, 2 years, 3 years, and 4-6 years) on the seven stages of concern. Also, there was no significant interaction effect by gender and experience on the stages of concern.

When testing gender's main effect, the MANOVA yielded a Wilks Lambda ratio of $F = 3.399$, $p = .002$. This statistic indicates that there are significant differences between females and males on their reported stages of concern. $R^2 = 9.2$ indicates a small effect size, meaning that only 9.2 % of the variation in the dependent variables is

attributed to variation on gender. A followup ANOVA then was used to identify stages of differences. ANOVA results indicated that females and males had significant mean differences in only the management stage and the refocusing stage (see Table 13 and Table 15).

Table 13
ANOVA for Gender and Management Concern

<u>Source</u>	<u>Df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Gender	1	367.729	367.729	7.437	.007
Residual	240	11866.699	49.445		

P < .05.

In the management stage, females indicated a higher management concern mean (14.38) than did males (12.03). This finding revealed that females had more logistics, time, and management concerns than did males. Table 14 provides descriptive statistics for management concern.

Table 14
Mean Differences in the Management Concern

<u>Source</u>	<u>N</u>	<u>M</u>	<u>SD</u>
Female	133	14.38	7.73
Male	115	12.03	6.34



Figure 4. Comparison of female and male mean scores on management stage.

Moreover, ANOVA test indicated statistically significant mean differences between females and males on the refocusing concern. Table 15 provides ANOVA analysis output when gender effect was examined in relation to the refocusing stage.

Table 15
ANOVA for Gender and Refocusing Concern

Source	<u>Df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Gender	1	162.199	162.199	4.250	.040
Residual	240	9159.346	38.164		

P < .05.

Table 16 indicates a statistically significant difference between female and male scores on the refocusing stage, favoring males. Males scored a higher mean (24.27) on the refocusing level than did females (22.80).

Table 16
Mean Differences in the Refocusing Concern

Source	<u>N</u>	<u>M</u>	<u>SD</u>
Female	133	22.80	6.15
Male	115	24.27	6.41

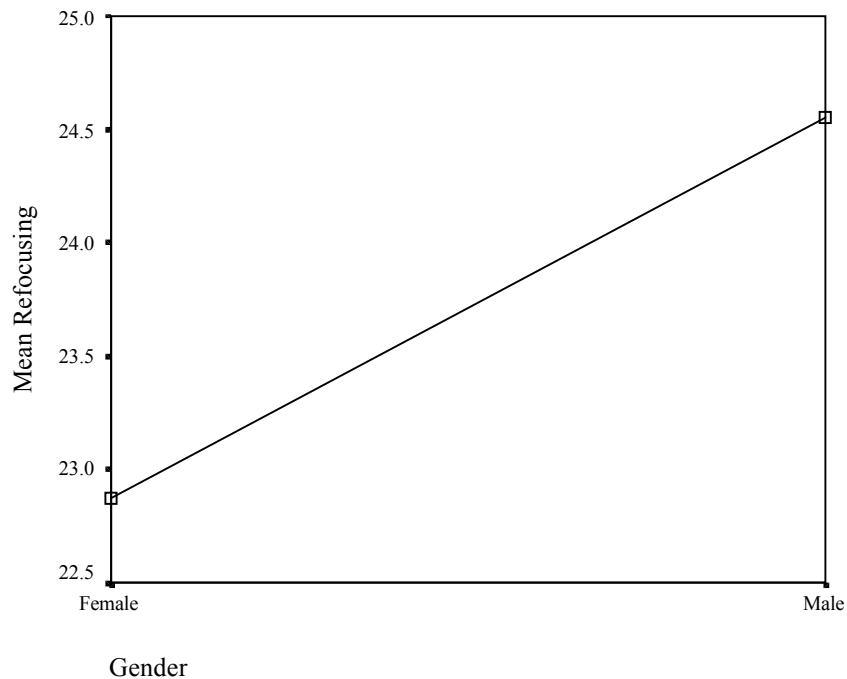


Figure 5. Comparison of female and male mean scores on refocusing stage.

In this section, MANOVA indicates that the gender variable had significant relationship to two teacher stages of concerns; while teacher experience had no significant relationship to the reported stages of concern, neither did the interaction effect. Two stages were found to be significant with gender. Teachers' scores on the management and refocusing stages were significantly different. Females were significantly higher on the management concern but lower than males on the refocusing concern.

In this analysis of multivariate tests, one essential point is worth noticing. MANOVA tested all variables together in this study. Two independent variables (gender with two levels and experience with four levels) and seven dependent variables were statistically tested for significant difference in means. As a rule of thumb in statistics, the higher degree of freedom (df), the lower the probability of a test to yield significance. In the whole model of MANOVA, the degree of freedom of gender with stages of concerns was 7; the degree of freedom of experience with stages of concern was 21; and the degree of freedom of interaction (gender and experience with stages of concern) was 21. Therefore, these high degrees of freedom in the experience main effect and the interaction effect might have caused the nonsignificant results.

CHAPTER 5

SUMMARY, FINDINGS, CONTRIBUTIONS OF THE STUDY, AND RECOMMENDATIONS

Summary

Kuwait has mandated the adoption of computer education curriculum in all intermediate schools. This project, called Kuwait Intermediate School Information Technology Project (KISITP) is an ongoing implementation of the Information Technology (IT) curriculum that started in some schools in the 1994-1995 school year and will be implemented fully in all intermediate schools in the academic year 2002-2003. The Information Technology curriculum includes six units of computer utilization and applications: Computer World, Graphics, Word Processor, Logo, Spread Sheet, and Integrative Projects (Al-Furaih et al., 1997). The Ministry of Education has recruited specialized computer teachers to teach this curriculum and has provided them with staff development. New textbooks, teacher guides, and classroom materials have been adopted for each grade level to accommodate teaching and learning the new curriculum.

The purpose of this study was to identify concerns that teachers experienced when implementing the Information Technology curriculum in the middle schools in Kuwait. Also, it was designed to investigate the relationships between teacher stages of concern and factors such as experience and gender. This study addressed the following questions:

1. What are teachers' concerns toward the implementation of the Information Technology curriculum in the intermediate schools in Kuwait?

2. Are there statistically significant relationships between teachers' reported stages of concern and other factors, such as gender and experience?

In this study, a two-part instrument, the Stages of Concern Questionnaire and demographic survey, was administered. The stages of concern survey was delivered to 312 teachers who either were teaching or were at the beginning of teaching the Information Technology curriculum in Kuwaiti intermediate schools. A return rate of 79.4 % (248 teachers) was obtained. The sample of this study consisted of 133 females and 115 males.

Teachers' item responses were summed to obtain group raw scores, and these raw scores were then converted to percentiles in order to design graphical group profiles. Three procedures of concern analysis were employed. First, the group profile analysis revealed that teachers had four high concerns related to the collaboration, personal, refocusing, and informational stages. Teachers also reported low concerns at the management and awareness stages. In relation to teacher gender, the analysis of group profile indicated that females had high concerns at the collaboration and informational stages, with low concern related to awareness. Males reported collaboration and refocusing concerns, with minimal management concern. Both females and males reported collaboration as their greater concern. Also, in relation to teacher experience with the innovation, the analysis of group profile revealed that teachers with more years of experience developed higher impact concerns. Second, the analysis of individuals' peak concerns revealed that the majority of the respondents (62.9 %) were users of the innovation. Third, the analysis of the first highest and second highest concerns among

teachers revealed the development of three patterns of concerns: self concerns, mixed concerns, and impact concerns. Results indicated that the majority of teachers were at the mixed-concern level.

In addition, MANOVA was applied to test significant relationships between teachers' stages of concern and factors such as gender and experience. The relationships between two independent variables (gender and teaching experience) and seven dependent variables (awareness, informational, personal, management, consequence, collaboration, and refocusing) were examined. Statistically significant differences were found between females and males at management and refocusing stages. Females had higher concerns on management; males had higher refocusing concerns. However, no significant relationship was found between experience and the reported stages of concern.

Discussion of Findings

The findings of this study were derived from the interpretation of Stages of Concern Questionnaire data and the quantitative analysis of stages of concern using MANOVA. The interpretation of Stages of Concern Questionnaire data included three procedures: analysis of group profile, analysis of individuals' peak concerns, and analysis of the first highest and second highest concern.

First, the analysis of group profile revealed that teachers reported four high concerns related to collaboration, personal, refocusing, and informational stages. Teachers also indicated minimal concerns at the management and awareness stages. Collaboration concern means that teachers were concerned about working with other users in relation to the innovation; personal concern means that teachers were concerned

about the effect of the innovation on them; informational concern means that teachers wanted to learn more details about the innovation; and refocusing concern means that teachers had ideas about improving the innovation. Low management concern means that teachers had innovation management and use under control. Low awareness concern means that teachers were interested in and involved in the innovation. This profile revealed that the sample represented users who were concerned about working with other teachers to share ideas and gather information about the innovation (IT) requirements and the effects on them. Teachers were also found to be interested in and involved in the innovation and had minimal concern about managing use of the innovation.

In relation to teacher gender, the analysis of group profile indicated that females had high concerns at the collaboration and informational stages, with low concern related to awareness. Female teachers were interested in learning from other teachers about how they could best implement the IT curriculum. On the other hand, males reported collaboration and refocusing concerns, with minimal management concern. This combination of males' concerns reveals that males had some ideas about improving the use of the IT curriculum, and they were willing to share these ideas with other users. Both females and males reported collaboration as their greater concern--were concerned about relating their use of the innovation to other teachers' use.

The group profile analysis in relation to teachers' experience indicated that teachers with 1 year of experience had high concerns related to the personal and informational stages, with low awareness concern. They were interested in learning more about their roles in the adoption of the IT curriculum. Teachers with 2 years of teaching

experience revealed high concerns related to the collaboration and personal stages, with low awareness concern. They were interested in discussing their personal concerns with other users. Both groups of teachers with 3 years of experience and teachers with 4 to 6 years of experience indicated similar concerns of high collaboration and refocusing, with minimal management concern. Teachers in both groups were comfortable with the use of innovation and had ideas about improving the innovation that they wanted to share with other users. Consistent with the theory of concern development, the analysis of group profile in relation to teacher experience with the IT revealed that teachers with more years of experience developed higher impact concerns.

Second, the analysis of individuals' peak concerns revealed that 92 teachers had early self-oriented concerns (awareness, informational, and personal). This means that they felt personal threat in relation to the innovation. They wanted more information about how using the innovation would affect them. On the other hand, 156 teachers reported high levels of concerns at the four later stages of concerns, task-oriented and impact-oriented concerns. This means that this majority was concerned about the best use of the innovation in relation to its impact on students. According to Hall et al. (1979) and Rogers (1992), teachers who are at the four later stages of concerns (management, consequence, collaboration, and refocusing) are users who have successfully adopted the educational innovation. However, teachers reporting self-oriented concerns (awareness, informational, and personal) are nonusers who have not yet accepted the innovation. The analysis of the peak concerns of individuals revealed that the majority of respondents

(62.9%) in this study had successfully adopted the Information Technology curriculum and that they are actively engaged in establishing the best use of the innovation.

Third, analysis of the first highest stage of concern along with the second highest revealed the development of three patterns of concerns: the self-concern pattern, representing teachers with both first and second peaks at the self-concern stages; the mixed-concern pattern, representing teachers with mixed concerns of two different stages (self-task, self-impact, task-self, task-impact, impact-self, and impact-task); and the impact-concern pattern, which included only teachers with both first and second peaks at the impact levels. The data indicated that the majority of the respondents were mixed-concern users who had their first or second peak concern at the impact or task levels and either self-oriented or task-oriented concerns. Although the majority of teachers in this study revealed higher levels of concern about the impact of using the IT curriculum on their students, they had secondary self-oriented concerns and task concern. These early self-concerns and task concern need to be resolved in order to move this majority to the impact-concern user level.

Moreover, when analyzing the first highest and second highest concerns in relation to teaching experience, data revealed that teachers with 1 year of teaching experience were the majority in the self-concern pattern; the majority of the mixed-concern user pattern included teachers with 2 years of experience; and teachers with 4 to 6 years of experience were found to be the majority in the impact-concern user pattern. Another trend also was found when these three patterns were analyzed independently. The self-concern pattern was highest in year 1 of experience and stable after 2 years of

experience. The mixed-concern pattern was highest in years 1 and 2 then decreased after year 2. The impact-concern pattern increased with each year of experience. These findings indicate that, the more teachers were experienced with the innovation, the higher the levels of impact appeared. It was evident that with more teaching experience the early self concerns shifted to task concern and ultimately to higher impact concerns. These findings are consistent with the theory of concerns development by Fuller (1969), stating that, with more experience, teachers develop higher levels of impact concerns, concerns about pupils.

In addition, MANOVA analysis for significant difference between means revealed that there were statistical differences in means between females and males in the management and refocusing stages. In the management stage, females indicated a higher management concern mean than did males. This finding revealed that females had more logistics, time, and management concerns than did males. However, males revealed higher refocusing concern levels than did females. This finding indicated that males had more ideas about improving the teaching of the IT curriculum than did females. When testing the differences in means between the four groups of teaching experience (1 year, 2 years, 3 years, and 4-6 years), there were no statistically significant differences.

Contributions of the Study

This study was designed to make significant contributions to the Kuwait Intermediate School Information Technology Project (KISITP) in particular and to the research on teacher concerns about innovation in general. The findings of this study

could contribute to the areas of policy, theory of concern development, and research methods.

Policy

The KISITP was intended to be fully implemented in the year 2003, so there are 3 more years before complete implementation. The results of this study then are of great benefit to KISITP decision makers in supporting program implementation. This study could be useful to policy makers in Kuwait because it revealed the concerns of 79.4 % of teachers during the adoption of the IT curriculum. Thus, the findings of this study could be used by the KISITP coordinators to facilitate the adoption of the IT curriculum in the intermediate schools. According to Wood (1989), not all innovation finds its way into the actual daily practice in classrooms unless the implementation is monitored and appropriate interventions are provided. Personalizing the innovation by identifying teachers' concerns is the key to successful intervention (Vaughan, 1997). This study revealed teachers' concerns toward the adoption of IT and uncovered teachers' perceptions about the implementation process. Policy makers in Kuwait thus will be able to understand teachers' concerns, perceptions, and attitudes toward the implementation of the IT curriculum.

Identifying teachers' concerns could help policy makers design appropriate interventions to resolve the concerns of teachers toward the adoption of the IT curriculum. Thus, appropriate decisions could be made about what and how to provide interventions during the implementation process. The findings of this study may contribute to the development of new policies to guide change to a point of effective

implementation. This study also introduces the SoCQ as one reliable instrument in collecting data about teachers' concerns.

Theory

The findings of this study could contribute to the theory of concern development. The research of Fuller (1969) concluded that teachers' concerns develop from early-stage concerns (self concerns) to late-stage concerns (concerns with pupils). Fuller's model assumes that concerns tend to shift from personal, to task, and finally to impact concerns. Moreover, Hall (1985) reported that the research on teacher concerns has proven that teachers' concerns toward an innovation are developmental if the innovation is appropriate and supportive interventions have been provided. The theory of concern development was based on the information gathered from research that had been done on American samples. In this study, the population was Kuwaiti teachers speaking the Arabic language. When the SoCQ was used in collecting data from Kuwaiti teachers, the findings of this study were consistent with the theory of concern development. The findings of this study indicated that teachers with many years of experience expressed higher impact concerns, while teachers with few years of experience reported lower self concerns. The findings of this study also could contribute to the overall understanding of how the concerns of teachers in Kuwait are developed.

Methodology

The findings of this study could contribute to a research methodology if the study is to be replicated. The Stages of Concern Questionnaire (see Appendix A) is the instrument used to collect data about teacher concerns toward the implementation of the

IT curriculum in the intermediate schools in Kuwait. Stages of concern is a primary dimension of the Concern-Based Adoption Model (CBAM), a model developed at the University of Texas R&D Center to conceptualize and facilitate educational change (Hall et al., 1979). Seven hypothesized stages of concern that reflect three dimensions have been defined: self concerns (awareness, informational, and personal); task concern (management); and impact concerns (consequence, collaboration, and refocusing).

The Stages of Concern Questionnaire (SoCQ) and its scoring manual, developed by Hall et al. (1979), are based on data collected from research on American subjects, and this questionnaire has been proven valid and reliable to provide meaningful data about teachers' concerns. However, in this study, the SoCQ was translated into the Arabic language, and its reliability and validity remain important. The development of this new version of the SoCQ allowed the original English-type questionnaire to be used for collecting data about the concerns of Arabic subjects. This new version of the SoCQ could be used with another Arabic-speaking population. Also, this study introduced the development of three patterns of concerns: the self-concern pattern, the mixed-concern pattern, and the impact-concern pattern.

Finally, this study could contribute to the research on change and teachers' concerns about the adoption of an innovation. The findings of this study could help change facilitators make appropriate decisions on when and how to provide support to individual teachers during the implementation of the IT curriculum in Kuwait. Also, in this study, the CBAM was introduced as an effective tool to facilitate the change process

in Kuwait. The Arabic Stages of Concern Questionnaire was a significant product of this research.

Recommendations

The Concerns-Based Adoption Model (CBAM) has been proven to be an appropriate tool in identifying concerns and in providing effective interventions.

Innovation configuration, stages of concern, and levels of use are three components of the CBAM that should be employed during change efforts to facilitate, monitor, and support the adoption process. The CBAM is discussed in detail in chapter 2. Since identifying teachers' stages of concern is of a great importance in order to provide appropriate support and assistance to facilitate the adoption of an innovation, the following recommendations are made regarding the use of the SoCQ in the Information Technology project:

1. The KISITP coordinators are encouraged to continue the implementation of Information Technology curriculum. They are also encouraged to continue the provision of training, not only prior to implementation, but also during implementation. For effective implementation of the IT curriculum, continuous monitoring and assistance are recommended.

2. Because the results of this study revealed that teachers experienced collaboration concerns, the KISITP coordinators are recommended to develop a policy that encourages peer collaboration and coaching. Classroom visits are recommended to help teachers learn from each other. Teacher meetings should be held weekly within individual schools, monthly within each district, and every 3 months nationwide.

3. The KISITP coordinators are encouraged to provide both in-site and on-Web support for teachers during the implementation process.

For effective implementation of an innovation, change facilitators need to identify the concerns of adopters and to provide appropriate interventions that resolve those concerns. Hord et al. (1987) suggested a set of interventions (see Appendix M) that might respond to teachers' stages of concern. This set of interventions as a useful resource as KISTIP facilitators design their own interventions.

The nature of an innovation and the types of intervention could positively or negatively affect the appearance of the desirable impact concerns that lead to higher levels of innovation implementation. Further, the Stages of Concern Questionnaire is only a diagnostic tool used to reveal concerns that teachers experience during the implementation process. Therefore, caution must be taken in the use of the SoCQ:

4. The KISITP coordinators should not use the SoCQ for evaluation of teachers, but for facilitation of change and improvement in the implementation. Although the results of this study can only be generalized to the volunteer sample of teachers in the KISITP project in Kuwait, the results are considered encouraging for further application and research based on the Concerns-Based Adoption Model and the SoCQ. Participants voluntarily and independently completed the questionnaire; therefore, the results of this study were affected by whether their responses represent true reflections of their present concerns. This study was also the first use of the SoCQ with an Arabic population, and the interpretations of stages of concern used in this study was based on American

respondents. To strengthen the understanding and interpretation of the model and questionnaire, the following recommendations are made:

5. The Arabic version of the SoCQ should be tested with other Arabic-speaking populations and in other innovations in Arabic schools.

6. In future studies, identification of possible cultural differences that might affect the interpretations of stages of concern in Kuwaiti setting is important. By conducting two procedures of SoC's data collection, open-ended response and interviews, the results might be more culturally sensitive. The open-ended response and interview techniques might also help identify teachers resistant to change.

7. Further studies should include a longitudinal study to follow the changes in teachers' concerns over time. The other two dimensions of the CBAM (LoU and IC) should be also included in further research. Also, further research should address the relationships between stages of concern and other factors, such as school district, age, and teacher qualifications. The development of individual teacher profiles, individual school profiles, and individual district profiles are encouraged.

In school reform, change must be viewed as a direct impact on individuals; therefore, individuals' perception, attitudes, and concerns must be considered, and appropriate interventions and support should be provided. Understanding change and its effects are important in facilitating a change process. Also, change assumptions are important to consider when adopting an innovation. The preceded recommendations are suggestions based on the findings of the review of literature about change, the CBAM, and the theory of concern development. They are also based on the findings of the

investigation of teachers' concerns toward the implementation of the IT curriculum in the intermediate schools in Kuwait.

APPENDIX A

STAGES OF CONCERN QUESTIONNAIRE ORIGINAL VERSION

Stages of Concern Questionnaire

Name (optional) _____

The purpose of this questionnaire is to determine what people who are using or thinking about using various programs are concerned about at various times during the innovation adoption process. The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various programs to many years experience in using them. Therefore, a good part of the items on this questionnaire may appear to be little relevance or irrelevant to you at this time. For the completely irrelevant items, please circle “0” on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher

For example:

This statement is very true of me at this time.

☐ 0 ☒ 1 2 3 4 5 6 7

This statement is somewhat true of me now.

0 1 2 3 4 5 6 7

This statement is not at all true of me at this time.

0 1 2 3 4 5 6 7

This statement seems irrelevant to me.

0 1 2 3 4 5 6 7

Please respond to the items in terms of *your present concerns*, or how you feel about your involvement or potential involvement with *Information Technology Curriculum*. We do not hold to one definition of this innovation, so please think of it in terms of *your perception* of what it involves. Since this questionnaire is used for a variety of innovations, the name *Information Technology Curriculum* never appears. However, phrases, such as “the innovation,” this approach,” and “the new system” all refer to *Information Technology Curriculum*. Remember to respond to each item in terms of *your present concerns* about your involvement or potential involvement with *Information Technology Curriculum*.

Thank you for taking time to complete this task.

	0	1	2	3	4	5	6	7
	Irrelevant	Not true of me now	Somewhat true of me now			Very true of me now		
1.	I am concerned about students' attitudes toward this innovation.						0	1 2 3 4 5 6 7
2.	I now know of some other approaches that might work better.						0	1 2 3 4 5 6 7
3.	I don't even know what the innovation is.						0	1 2 3 4 5 6 7
4.	I am concerned about not having enough time to organize myself each day.						0	1 2 3 4 5 6 7
5.	I would like to help other faculty in their use of the innovation.						0	1 2 3 4 5 6 7
6.	I have a very limited knowledge about the innovation.						0	1 2 3 4 5 6 7
7.	I would like to know the effect of reorganization on my professional status.						0	1 2 3 4 5 6 7
8.	I am concerned about conflict between my interests and my responsibilities.						0	1 2 3 4 5 6 7
9.	I am concerned about revising my use of the innovation.						0	1 2 3 4 5 6 7
10.	I would like to develop working relationships with both our faculty and outside faculty using this innovation.						0	1 2 3 4 5 6 7
11.	I am concerned about how the innovation affects students.						0	1 2 3 4 5 6 7
12.	I am not concerned about this innovation.						0	1 2 3 4 5 6 7
13.	I would like to know who will make the decisions in the new system.						0	1 2 3 4 5 6 7
14.	I would like to discuss the possibility of using the innovation.						0	1 2 3 4 5 6 7
15.	I would like to know what resources are available if we decide to adopt this innovation.						0	1 2 3 4 5 6 7
16.	I am concerned about my inability to manage all the innovation requires.						0	1 2 3 4 5 6 7
17.	I would like to know how my teaching or administration is supposed to change.						0	1 2 3 4 5 6 7
18.	I would like to familiarize other departments or persons with the progress of this new approach.						0	1 2 3 4 5 6 7

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	0	1	2	3	4	5	6	7
	Irrelevant	Not true of me now	Somewhat true of me now				Very true of me now	
19. I am concerned about evaluating my impact on students.								0 1 2 3 4 5 6 7
20. I would like to revise the innovation's instructional approach.								0 1 2 3 4 5 6 7
21. I am completely occupied with other things.								0 1 2 3 4 5 6 7
22. I would like to modify our use of the innovation based on the experiences of our students.								0 1 2 3 4 5 6 7
23. Although I don't know about this innovation, I am concerned about things in the area.								0 1 2 3 4 5 6 7
24. I would like to excite my students about their part in this approach.								0 1 2 3 4 5 6 7
25. I am concerned about time spent working with nonacademic problems related to this innovation.								0 1 2 3 4 5 6 7
26. I would like to know what the use of the innovation will require in the immediate future.								0 1 2 3 4 5 6 7
27. I would like to coordinate my effort with others to maximize the innovation's effects.								0 1 2 3 4 5 6 7
28. I would like to have more information on time and energy commitments required by this innovation.								0 1 2 3 4 5 6 7
29. I would like to know what other faculty are doing in this area.								0 1 2 3 4 5 6 7
30. At this time, I am not interested in learning about this innovation.								0 1 2 3 4 5 6 7
31. I would like to determine how to supplement, enhance, or replace the innovation.								0 1 2 3 4 5 6 7
32. I would like to use feedback from students to change the program.								0 1 2 3 4 5 6 7
33. I would like to know how my role will change when I am using the innovation.								0 1 2 3 4 5 6 7
34. Coordination of tasks and people is taking too much of my time.								0 1 2 3 4 5 6 7
35. I would like to know how this innovation is better than what we have now.								0 1 2 3 4 5 6 7

APPENDIX B
HUMAN SUBJECT APPROVAL



University of North Texas
Research Services

November 5, 1999

Bandar Alshammari
409 Gardenvue
Denton, TX 76207

Re: Human Subjects Application No. 99-209

Dear Mr. Alshammari:

As permitted by federal law and regulations governing the use of human subjects in research projects (45 CFR 46), I have conducted an expedited review of your proposed project titled "Teachers' Concerns Toward The Implementation of Information Technology Project in Kuwait." The risks inherent in this research are minimal, and the potential benefits to the subjects outweigh those risks. The submitted protocol and informed consent form is hereby approved for use of human subjects on this project.

U.S. Department of Health and Human Services regulations require that you submit annual and terminal progress reports to the UNT Institutional Review Board. The UNT IRB must re-review this project annually and/or prior to any modifications you make in the approved project. Please contact me if you wish to make such changes or need additional information.

Sincerely,

A handwritten signature in dark ink, appearing to read "Reata Busby", with a long, sweeping horizontal line extending to the right.

Reata Busby, Chair
Institutional Review Board

RB:sb

P.O. Box 305250 • Denton, Texas 76203-5250
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e-mail: lane@abn.unt.edu

APPENDIX C
STATEMENTS ON STAGES OF CONCERN

Statements on the Stages of Concern Questionnaire
Arranged According to Stage

Item Number	Statement
Stage 0 Awareness Concern	
3	I don't even know what the innovation is.
12	I am not concerned about this innovation.
21	I am completely occupied with other things.
23	Although I don't know about this innovation, I am concerned about things in the area.
30	At this time, I am not interested in learning about this innovation.
Stage 1 Informational Concern	
6	I have a very limited knowledge about the innovation.
14	I would like to discuss the possibility of using the innovation.
15	I would like to know what resources are available if we decide to adopt this innovation.
26	I would like to know what the use of the innovation will require in the immediate future.
35	I would like to know how this innovation is better than what we have now.
Stage 2 Personal Concern	
7	I would like to know the effect of reorganization on my professional status.
13	I would like to know who will make the decisions in the new system.
17	I would like to know how my teaching or administration is supposed to change.
28	I would like to have more information on time and energy commitments required by this innovation.
33	I would like to know how my role will change when I am using the innovation.

Stage 3 Management Concern

- 4 I am concerned about not having enough time to organize myself each day.
- 8 I am concerned about conflict between my interests and my responsibilities.
- 16 I am concerned about my inability to manage all the innovation requires.
- 25 I am concerned about time spent working with nonacademic problems related to this innovation.
- 34 Coordination of tasks and people is taking too much of my time.

Stage 4 Consequence Concern

- 1 I am concerned about students' attitudes toward this innovation.
- 11 I am concerned about how the innovation affects students.
- 19 I am concerned about evaluating my impact on students.
- 24 I would like to excite my students about their part in this approach.
- 32 I would like to use feedback from students to change the program.

Stage 5 Collaboration Concern

- 5 I would like to help other faculty in their use of the innovation.
- 10 I would like to develop working relationships with both our faculty and outside faculty using this innovation.
- 18 I would like to familiarize other departments or persons with the progress of this new approach.
- 27 I would like to coordinate my effort with others to maximize the innovation's effects.
- 29 I would like to know what other faculty are doing in this area.

Stage 6 Refocusing Concern

- 2 I now know of some other approaches that might work better.
- 9 I am concerned about revising my use of the innovation.
- 20 I would like to revise the innovation's instructional approach.
- 22 I would like to modify our use of the innovation based on the experiences of our students.
- 31 I would like to determine how to supplement, enhance, or replace the innovation.

APPENDIX D
STAGES OF CONCERN QUESTIONNAIRE
ARABIC VIRSION

أسئلة لمعرفة الاهتمام

الإسم (اختياري)

إن الهدف من هذا الاستبيان هو تحديد كيفية تقبل المدرسين لمنهج المعلوماتية وشعورهم نحو هذا التغيير التعليمي خلال فترات تطبيق مشروع إدخال الحاسوب في المرحلة المتوسطة. تم تطوير هذه الأسئلة بناءً على الأجوبة المعتادة لأساتذة المدارس والجامعات الذين تتراوح خبراتهم من معرفة قوية بالموضوع إلى عدم معرفة نهائياً. لذا فإن جزءاً كبيراً من هذه الأسئلة قد يبدو لكم بأنه لا علاقة له بالموضوع حالياً أو العكس. الرجاء عند الإجابة على هذه الأسئلة إعطائها علامات تتطابق مع شعورك تجاهها في الوقت الحاضر، تتراوح الأجوبة على هذه الأسئلة من (٠) إلى (٧)، حيث يمثل الرقم (٠) عدم اهتمام كلي أو معرفة بالسؤال المطروح و الرقم (٧) يمثل معرفة تامة و تطابق كلي، بينما تشكل الأرقام ما بينهما نسبة معرفتك وشعورك تجاه الموضوع. لذا يرجى وضع دائرة واحدة حول الجواب المناسب على المقياس المدرج المعطى.

مثلاً:

- إن هذا التعبير صحيح جداً في الوقت الحاضر. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
- إن هذا التعبير ينطبق علي بعض الشيء. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
- إن هذا التعبير لا ينطبق علي أبداً في الوقت الحاضر. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
- إن هذا التعبير لا يعني لي شيئاً. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠

يرجى الإجابة على هذه الأسئلة طبقاً لاهتماماتك الحالية أو شعورك تجاه مشاركتك أو احتمال مشاركتك بتدريس منهج المعلوماتية. لا يوجد هناك أي تحديد معين لهذا الابتكار، لذا يرجى التفكير من ناحية نظرتك للموضوع. بما أن هذه الأسئلة تستعمل لعدة ابتكارات جديدة، فإن كلمة منهج المعلوماتية لن تظهر أبداً، إلا أن كلمات مثل (هذا الابتكار الجديد) و (هذا التوجه) و (النظام الجديد) ستحل محلها. تذكر بأن إجاباتك يجب أن تعكس حقيقة شعورك الحالي تجاه مشاركتك أو احتمال مشاركتك في تدريس منهج المعلوماتية. نشكركم سلفاً على إعطاء وقتكم للإجابة على هذه الأسئلة.

٧	٦	٥	٤	٣	٢	١	٠
ينطبق عليّ جداً حالياً		ينطبق عليّ بعض الشيء حالياً		غير صحيح بالنسبة لي حالياً		لا يعني لي شيئاً	

١. أنا مهتم بمعرفة شعور الطلبة تجاه هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢. أنا على معرفة بطرق أخرى قد تحقق نتائج أفضل. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣. أنا لا أعلم حتى ما هو هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٤. أنا قلق لعدم وجود وقت كافٍ لتنظيم نفسي كل يوم. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٥. أرغب بمساعدة المدرسين الآخرين على تعلم كيفية استخدام هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٦. عندي معرفة محدودة عن هذا الابتكار الجديد. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٧. أرغب بمعرفة تأثير عملية استخدام هذا الابتكار على مركز الوظيفي. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٨. أنا قلق بالنسبة للتضارب بين اهتماماتي ومسؤولياتي. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٩. أنا مهتم بالنسبة لمراجعة وتصحيح استعمالي لهذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٠. أرغب بإقامة علاقة عمل مع كل من طاقم التعليم الخاص بنا وطاقم تعليم آخر من خارج المدرسة يستعمل هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١١. أنا مهتم لمعرفة تأثير هذا الابتكار على الطلبة. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٢. أنا غير مهتم بهذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٣. أرغب بمعرفة من سيتخذ القرارات في هذا النظام الجديد. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٤. أرغب بمناقشة كيفية استخدام هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٥. أرغب بمعرفة المصادر و الوسائل التعليمية المتوفرة في حال قررنا استعمال هذا الابتكار الجديد. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠

٧	٦	٥	٤	٣	٢	١	٠
ينطبق علي جدا حاليا		ينطبق علي بعض الشيء حاليا		غير صحيح بالنسبة لي حاليا		لا يعني لي شيئا	

١٦. أنا قلق بالنسبة لعدم قدرتي على إدارة كل متطلبات هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٧. أرغب بمعرفة كيفية تغيير طريقة تعليمي أو إدارتي عند استعمال هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٨. أرغب بتزويد الأقسام المختلفة والأفراد بمعلومات عن عملية سير هذا التوجه الجديد. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
١٩. أنا مهتم في تقييم تأثيري على الطلبة. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٠. أرغب بمراجعة وتصحيح التوجه التعليمي لهذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢١. أنا مشغول كليا بأشياء أخرى. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٢. أرغب بتعديل استخداماتنا لهذا الابتكار الجديد وفقا لخبرات طلبتنا. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٣. بالرغم من عدم معرفتي بهذا الابتكار فإنني قلق حول بعض الأشياء في هذا المجال. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٤. أرغب ببث الحماس بين طابعتي حول دورهم في هذا التوجه. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٥. أنا قلق بالنسبة للوقت المخصص للمسائل الغير تعليمية المتعلقة بهذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٦. أنا أرغب بمعرفة متطلبات استعمال هذا الابتكار على المدى القريب. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٧. أرغب بتنسيق جهودي مع الآخرين للحصول على أقصى فوائد هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٢٨. أرغب بالحصول على معلومات أكثر حول الوقت والجهد اللذان يتطلبهما هذا الابتكار. ٧ ٦ ٥ ٤ ٣ ٢ ١ ٠

٧	٦	٥	٤	٣	٢	١	٠
يتعلق عليّ جدا حاليا			ينطبق عليّ بعض الشيء حاليا			غير صحيح بالنسبة لي حاليا	لا يعني لي شيئا

٢٩. أرغب بمعرفة ما يفعله الأساتذة الآخرون
في هذا المجال.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣٠. في الوقت الحاضر أنا غير مهتم بمعرفة هذا الابتكار.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣١. أنا أرغب بتحديد كيفية نقوية أو استبدال هذا
الابتكار.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣٢. أرغب باستعمال ردة فعل الطلبة بالنسبة لهذا
الابتكار بهدف تغييره.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣٣. أرغب بمعرفة كيفية تغير دوري عند استعمال
هذا الابتكار.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣٤. إن التنسيق بين الأعمال والأشخاص يأخذ الكثير
من وقتي.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠
٣٥. أود أن أعرف لماذا يعتبر هذا الابتكار أفضل مما
لدينا حاليا.
٧ ٦ ٥ ٤ ٣ ٢ ١ ٠

معلومات شخصية

يرجى إكمال الآتي:

١. الجنس: ذكر _____ أنثى _____
٢. العمر: ٢٩-٣٠ _____ ٣٩-٤٠ _____ ٤٩-٥٠ _____ ٥٩-٦٠ _____ ٦٩-٧٠ _____
٣. إسم المدرسة: _____
٤. إسم المنطقة التعليمية: _____
٥. أعلى درجة علمية حزت عليها _____ التخصص: _____
٦. مؤهلات تربوية أخرى: _____
٧. عدد سنوات الخبرة في التدريس: _____
٨. الصفوف التي تدرّسها: ١ _____ ٢ _____ ٣ _____ ٤ _____
٩. متى بدأت بتعليم منهج المعلوماتية أو متى ستبدأ بتعليمه (العام الدراسي) ؟
٩٥-١٩٩٤ _____ ٩٦-١٩٩٥ _____ ٩٧-١٩٩٦ _____ ٩٨-١٩٩٧ _____ ٩٩-١٩٩٨ _____
١٩٩٩-٢٠٠٠ (الآن) _____
١٠. هل تلقيت تدريب رسمي لتعليم منهج المعلوماتية بإشراف وزارة التربية (دورات تدريبية) ؟
أ. نعم _____ كلا _____
ب. أثناء العام الدراسي _____ إجازة نصف السنة _____ الإجازة الصيفية _____
ت. في الفترة الصباحية _____ في فترة ما بعد الظهر _____
ث. إنكر أسماء جميع الدورات وعدد أيام المشاركة في كل دورة:

نوع التدريب	عدد الأيام
(١)	
(٢)	
(٣)	
(٤)	
(٥)	
(٦)	

APPENDIX E

STAGES OF CONCERN QUESTIONNAIRE BACK TRANSLATION

SoC Questionnaire (Back Translation)

1. I am interested in knowing the student's feelings about this innovation.
2. I have the knowledge of several processes that would produce better results.
3. I do not even know what this innovation is.
4. I am concerned about the lack of enough time to prepare myself everyday.
5. I am interested in helping other teachers to learn how to use this innovation.
6. I have limited knowledge about this new innovation.
7. I am interested in knowing the influence of using this innovation on my working position.
8. I am worried about the conflict between my interests and responsibilities.
9. I am interested in reviewing and correcting my use of this innovation.
10. I am interested in establishing a work relationship with both our educational faculty and an outside educational faculty who uses this innovation.
11. I am interested in knowing the influence of this innovation on students.
12. I am not interested in knowing about this innovation.
13. I am interested in knowing who will make the decisions in this new system.
14. I am interested in discussing how to use this innovation.
15. I am interested in knowing about the resources and the education vehicles available in case of the decision to use this new innovation.
16. I am concerned about my lack of ability to manage all the requirements of this innovation.
17. I am interested in knowing how to change my ways of learning or managing when using this innovation.
18. I am interested in providing different departments and personnel with information about the procedures of this new innovation.
19. I am interested in the evaluation of my influence on students.
20. I am interested in reviewing and correcting the educational objectives of this innovation.
21. I am very occupied with other things.

22. I am interested in changing our usage of this innovation according to our students experiences.
23. Even in the absence of knowledge about this innovation, I am still concerned about some things in this field.
24. I am interested in motivating my students about their role in this area.
25. I am concerned about the designated time for the other noneducational topics related to this innovation.
26. I am interested in knowing the short term requirements for using this innovation.
27. I am interested in collaborating my efforts with others in order to attain the maximum benefits of this innovation.
28. I am interested in having more information about the time and effort required by this innovation.
29. I am interested in knowing what other teachers are doing in this area.
30. At the time being, I am not interested in knowing this innovation.
31. I am interested in deciding how to strengthen or change this innovation.
32. I am interested in using the students reaction about this innovation for the purpose of changing it.
33. I am interested in knowing how to change my role when using this innovation.
34. The arrangement between work and people consume a lot of my time.
35. I am interested in knowing why this innovation is considered better than what we have now.

APPENDIX F
DEMOGRAPHIC SURVEY INSTRUMENT

Demographic Survey

PLEASE COMPLETE THE FOLLOWING

1. Gender: Male _____ Female _____
2. Age: 20-29 _____ 30-39 _____ 40-49 _____ 50-59 _____ 60-69 _____
3. School name _____
4. District name _____
5. Highest degree earned _____ Major _____
6. Other educational qualifications _____
7. How long have you been teaching? _____
8. Grade levels you teach: 5 _____ 6 _____ 7 _____ 8 _____
9. When did you begin teaching the **Information Technology Curriculum**, or when will you teach it (school year)?
1994-95 _____ 1995-96 _____ 1996-97 _____ 1997-98 _____
1998-99 _____ 1999-2000 (Now) _____
10. Have you received formal training in teaching **Information Technology Curriculum** (workshops, courses)?
 - a) Yes _____ No _____

Types of Training	<u>Number of Days</u>
1)	
2)	
3)	
4)	

APPENDIX G
COVER LETTER

Dear Teacher,

I am a doctoral student at the University of North Texas, and I am asking for your help. Please take a minute to read this letter. I am conducting a study to identify teachers concerns about the implementation of the Information Technology Curriculum. Because your school is implementing this curriculum, I feel you are one of the best sources of information for this study.

Enclosed with this letter is a two-part instrument that seeks to measure your present concerns about teaching the Information Technology Curriculum. If you choose to participate, I am asking you to fill out the Stages of Concerns Questionnaire and the Demographic Survey. All questions are straightforward, and there are no right or wrong answers. It should take about 20 minutes to complete the instrument. In the Stages of Concerns Questionnaire, the name Information Technology never appears. However, phrases such as, “the innovation,” “this approach,” and “this new system” all refer to the Information Technology Curriculum. Please respond to each item in terms of you present concerns about your involvement or potential involvement in teaching the Information Technology Curriculum.

Please understand that this is a research project not an attempt to evaluate your work. Therefore, I guarantee that your choice to participate and your responses if you do participate will not be identified with you personally. I ensure you that your responses will never affect your present or future teaching employment. As you will notice, you do not have to write your name on the questionnaire. I promise you that the information you will provide will be confidential, and no one can access this information except me. No individuals or schools will be identified in the study findings.

The findings of this study will be reported in my doctoral research, and recommendations will be made to facilitate the adoption of the Information Technology Curriculum. These recommendations will be shared with the program coordinators in order to assist you in the adoption process. I will be certain to report these study findings to you in the hope that they will be of value in your teaching. I would appreciate it if you could complete the questionnaire as soon as you can, or no later than one week. Please place the completed questionnaire in the envelope included and hand it to the principal office. I will then pick it up. This project has been approved by the UNT Committee for the Protection of Human Subjects (Tel 940-565-3940). Thank you for your help.

Sincerely,

Bandar S. AL-shammari

Contact: Bandar AL-shammari – Tel (940) 381-1810 – bandars@hotmail.com

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bandars@hotmail.com

APPENDIX H
PERMISSION FOR SOCQ USE

Joyce Pollard, Ed.D.
Director
Office of Institutional Communications
and Policy Services
Southwest Educational Development
Laboratory
211 E. Seventh St.
Austin, TX 78701-3281

Dear Dr. Pollard:

I am requesting permission to reprint/reproduce (in the case of videotapes) the following: The CBAM Stages of Concern Questionnaire

I intend to use the reprinted/reproduced information in the following way/with the designated audience (please attach examples): To identify teachers' stages of Concerns towards Information Technology Project in Kuwait

In the case of a videotape, I agree to duplicate the tape in its entirety without editing, splicing, or obliterating SEDL's copyright. I further agree to use or distribute the copies at no cost to the designated audience(s). Finally, I agree to give appropriate attribution (citations or reference) to the Southwest Educational Development Laboratory.

Name: Bandar Alshammari

Address: 409 Gardenview
Denton, TX 76201

Telephone Number: (940) 3830558

E-mail: bandars@hotmail.com

APPROVED: Joyce A. Pollard

DATE: 24 Aug 1999

APPENDIX I

MINISTRY OF EDUCATION PERMISSION LETTER



Ministry of Education
Curricula and Educational
Research Centre
Research Unit

وزارة التربية
مركز البحوث التربوية والمناهج
وحدة البحوث التربوية

التاريخ / / ١٤ هـ
الموافق ٢٨ / ١١ / ١٩٩٧ م

الرقم : و ت / ٨٧ / ٢٠٠٠
مرفقات :

السيد المحترم / مدير عام منطقة العاصمة التعليمية

الأستاذ / جاسم العمر

تحية طيبة وبعد ،،

بناء على الطلب المقدم من السيد / بندر سماح فهد الشمري الموفد
في بعثة دراسية للحصول على درجتي الماجستير والدكتوراه في التربية -
طرق تدريس الرياضيات من جامعة شمال تكساس بالولايات المتحدة
الأمريكية وذلك لتطبيق استبيان على مدرسي ومدرسات الحاسوب لجمع
المعلومات المتعلقة بدراسته .

يرجى تسهيل مهمة المذكور أعلاه في جميع مدارس المرحلة المتوسطة
(بنين - بنات) المطبقة لهذا المشروع التابعة لمنطقتكم .

شاكرين لكم حسن تعاونكم ،

مع خالص التحية ،،

مدير إدارة البحوث التربوية

د. جعفر يعقوب العريان



السيد المحترم / مدير عام منطقة العاصمة التعليمية
الأستاذ / جاسم العمر
٢٨ / ١١ / ١٩٩٧

السيد / جاسم العمر

برجاء الاستقبال
الرجاء من فضلكم كتابة درجتي
٢٨ / ١١ / ١٩٩٧
- نسخة للملف



Ministry of Education
Curricula and Educational
Research Centre
Research Unit

وزارة التربية
مركز البحوث التربوية والمناهج
وحدة البحوث التربوية

التاريخ / / ١٤ هـ
الموافق ٢٨ / ١١ / ١٩٩٩ م

الرقم : و ت / ٢١ / ٩٧
مرفقات :

السيدة المحترمة / مدير عام منطقة حولي التعليمية
الأستاذة / نورية الصبيح

تحية طيبة وبعد ،،

بناء على الطلب المقدم من السيد / بندر سماح فهد الشمري الموفد
في بعثة دراسية للحصول على درجتي الماجستير والدكتوراه في التربية -
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المعلومات المتعلقة بدراسته .
يرجى تسهيل مهمة المذكور أعلاه في جميع مدارس المرحلة المتوسطة
(بنين - بنات) المطبقة لهذا المشروع التابعة لمنطقتكم .

شاكرين لكم حسن تعاونكم ،
مع خالص التحية ،،

مدير إدارة البحوث التربوية

د. جعفر يعقوب العريان


إدارة البحوث التربوية

- نسخة للملف

ص.ب ١٦٢٢٢ القادسية ٢٥٨٥٣ الكويت . تلفون ٤٨٤٢٤٠٤ / ٤٨٣٨٣٢١ . فاكس ٤٨٤٢٤٠٤ / ٤٨٣٧٩٠٩
P. O. Box 16222 QADSIH 35853 KUWAIT - Tel. 4842404 / 4838321 - Fax. 4837909 / 4842404



Ministry of Education
Curricula and Educational
Research Centre
Research Unit

وزارة التربية
مركز البحوث التربوية والمناهج
وحدة البحوث التربوية

التاريخ / / ١٤
الموافق ١٨ / ١١ / ١٩٩٧ م

الرقم : و ت / ١٤ / ١٨
مرفقات :

السيد المحترم / مدير عام منطقة الأحمدية التعليمية

الأستاذ / محمود القروي

تحية طيبة وبعد ،،

بناء على الطلب المقدم من السيد / بندر سماح فهد الشمري الموفد في بعثة دراسية للحصول على درجتي الماجستير والدكتوراه في التربية - طرق تدريس الرياضيات من جامعة شمال تكساس بالولايات المتحدة الأمريكية وذلك لتطبيق استبيان على مدرسي ومدرسات الحاسوب لجمع المعلومات المتعلقة بدراسته .

يرجى تسهيل مهمة المذكور أعلاه في جميع مدارس المرحلة المتوسطة (بنين - بنات) المطبقة لهذا المشروع التابعة لمنطقتكم .

شاكرين لكم حسن تعاونكم ،

مع خالص التحية ،،

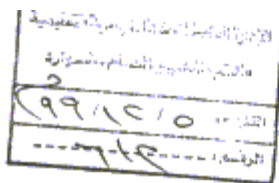
مدير إدارة البحوث التربوية

د. جعفر يعقوب العريان


إدارة البحوث التربوية

- نسخة للملف

ص.ب ١٦٢٢٢ الفارسيه ٢٥٨٥٢ الكويت . تلفون ٤٨٤٢٤٠٤ / ٤٨٣٨٣٢١ - فاكس ٤٨٤٢٤٠٤ / ٤٨٣٧٩٠٩
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وزارة التربية
مركز البحوث التربوية والمناهج
وحدة البحوث التربوية

التاريخ / / ١٤
الموافق ١١ / ٢٨ / ١٩٩٩ م

الرقم : و ت / ٨٧ / ١
مرفقات :

السيد المحترم / مدير عام منطقة الفروانية التعليمية

الأستاذ / بدر الشمروخ

تحية طيبة وبعد ،،

بناءً على الطلب المقدم من السيد / بندر سماح فهد الشمري الموفد
في بعثة دراسية للحصول على درجتي الماجستير والدكتوراه في التربية -
طرق تدريس الرياضيات من جامعة شمال تكساس بالولايات المتحدة
الأمريكية وذلك لتطبيق استبيان على مدرسي ومدرسات الحاسوب لجمع
المعلومات المتعلقة بدراسته .

يرجى تسهيل مهمة المذكور أعلاه في جميع مدارس المرحلة المتوسطة
(بنين - بنات) المطبقة لهذا المشروع التابعة لمنطقتكم .

شاكرين لكم حسن تعاونكم ،

مع خالص التحية ،،

مدير إدارة البحوث التربوية

د. جعفر يعقوب العريان



- نسخة للملف -

ص.ب ١٦٢٢٢ القادسية ٢٥٨٥٣ الكويت - تلفون ٤٨٢٤٢٤٠٤ / ٤٨٣٧٩٠٩ - فاكس ٤٨٢٤٠٤ / ٤٨٣٧٩٠٩
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Ministry of Education
Curricula and Educational
Research Centre
Research Unit

وزارة التربية
مركز البحوث التربوية والمناهج
وحدة البحوث التربوية

التاريخ / / ١٤
الموافق ٢٨ / ١١ / ١٩٩٧ م

الرقم : و ت / ٨٧ / ٢
مرفقات :

السيد المحترم / مدير عام منطقة الجبراء التعليمية
الأستاذ / سليمان الكوحي
تحية طيبة وبعد ،،

بناء على الطلب المقدم من السيد / بندر سماح فهد الشمري الموفد
في بعثة دراسية للحصول على درجتي الماجستير والدكتوراه في التربية -
طرق تدريس الرياضيات من جامعة شمال تكساس بالولايات المتحدة
الأمريكية وذلك لتطبيق استبيان على مدرسي ومدرسات الحاسوب لجمع
المعلومات المتعلقة بدراسته .

يرجى تسهيل مهمة المذكور أعلاه في جميع مدارس المرحلة المتوسطة
(بنين - بنات) المطبقة لهذا المشروع التابعة لمنطقتكم .

شاكرين لكم حسن تعاونكم ،
مع خالص التحية ،،

مدير إدارة البحوث التربوية

د. جعفر يعقوب العريان



إدارة البحوث التربوية

- نسخة للملف

APPENDIX J
DISTRICT SUPPORTIVE LETTERS



وزارة التربية

منطقة العاصمة التعليمية

وحدة التخطيط والمعلومات

التاريخ : ٣٠ / ١١ / ١٩٩٩م

حضرات السادة /نظار وناظرات مدارس المرحلة المتوسطة بنين/بنات.
تحية طيبة وبعد ،،،

يرجى تسهيل مهمة السيد /بندر سماح فهد الشمري الموفد في بعثة دراسية للحصول على درجتى الماجستير والدكتوراة في التربية - طرق تدريس الرياضيات من جامعة شمال تكساس بالولايات المتحدة الأمريكية وذلك لتطبيق إستبيان على مدرسى ومدرسات الحاسب لجمع المعلومات المتعلقة بالدراسة.

شاكرين حسن تعاونكم .

مدير

ادارة الشؤون التعليمية

محمود العبدالله
مدير إدارة الشؤون التعليمية
منطقة العاصمة التعليمية

نسخه لكل من :

- مدير إدارة الشؤون التعليمية

- وحدة التخطيط والمعلومات





وزارة التربية
الإدارة العامة لمنطقة حولي التعليمية
مكتب المدير العام

الرقم:

التاريخ: ٢٨/١١/١٩٩٩م

نشرة عامة رقم ٩٩/١٤٨ م
لجميع المدارس المتوسطة

السيدات والسادة المحترمين / ناظرات ونظار المدارس المتوسطة
تحية طيبة وبعد ،

بالإشارة الى كتاب مركز البحوث التربوية رقم (٩٧/١ ح/ت) بتاريخ
١٩٩٩/١١/٢٨ م ، بشأن الطلب المقدم من السيد / بندر سماح محمد الشمري - الموفد في
بعثة دراسية للحصول على درجتى الماجستير والدكتوراه فى التربية - طرق تدريس
الرياضيات من جامعة شمال تكساس بالولايات المتحدة الامريكية .

لذا يرجى تسهيل مهمة المذكور وذلك لتطبيق استبيان على مدرسي ومدرسات الحاسوب
لجمع المعلومات المتعلقة بدراسته .

مع خالص التحية ...

مدير عام
منطقة حولي التعليمية

خالد جليسي العتيبي
مدير إدارة الشؤون التعليمية - منطقة حولي التعليمية



نسخه / للميد مدير ادارة الشؤون التعليمية
نسخه / للميد مدير مركز البحوث التربوية
نسخة / للملف



وزارة التربية

منطقة الأحمدى التعليمية ٢٠١٧

إدارة الشؤون التعليمية

التاريخ : ١٥/١٢/١٩٩٩م

السادة لأفاضل والسيدات الفاضلات نظار وناظرات مدارس المرحلة المتوسطة

تحية طيبة وبعد ، ،

يرجى التكرم بتسهيل مهمة السيد / بندر سماح فهد الشمري لتطبيق استبيان على
مدرسي ومدرسات الحاسوب لجمع المعلومات المتعلقة بدراسته للحصول على درجتي
الماجستير والدكتوراة في التربية .

مع خالص التحية ، ، ،

مدير عام منطقة الأحمدى التعليمية

مدير إدارة الشؤون التعليمية
عبد الله مرشد السليمان



النسخ لـ :-

- مدير إدارة الشؤون التعليمية .
- مراقبة التعليم المتوسط .
- الملف .



نشرة خاصة رقم (99/224)
للمرحلة المتوسطة
بنين - بنات

السيدات والسادة / مديرو ومديرات - نظار وناظرات المرحلة المتوسطة

بعد التحية ،،،

بالإشارة إلى كتاب مدير إدارة البحوث التربوية رقم وت/ح/87 المؤرخ في 28/11/1999 .

يرجى تسهيل مهمة السيد / بندر سماح فهد الشمري الموفد في بعثة دراسية للحصول على درجتي الماجستير والدكتوراه في التربية - طرق تدريس الرياضيات من جامعة شمال تكساس بالولايات المتحدة الأمريكية ، وذلك لتطبيق استبيان على مدرسي ومدرسات الحاسوب لجمع المعلومات المتعلقة بدراسته .

شاكرين لكم حسن تعاونكم معنا
مع خالص التحية

مدير عام
منطقة الفروانية التعليمية

بدر يوسف الشموخ
مدير عام
منطقة الفروانية التعليمية



نسخة/مدير إدارة البحوث التربوية
نسخة/مدير عام المنطقة التعليمية
نسخة/مدير إدارة الشؤون التعليمية
نسخة/مراقبة التعليم المتوسط
نسخة/الملف
٦/١٦

بسم الله الرحمن الرحيم



وزارة التربية

منطقة الجبراء التعليمية

إدارة الشؤون التعليمية

الرقم : و ت / ط ج ل ٤ /

التاريخ : ٨ / ٢٦ / ١٤٢٠ هـ

الموافق : ٤ / ١٢ / ١٩٩٩ م

السادة المحترمون/نظار وناظرات مدير ومديرات المرحلة المتوسطة
السلام عليكم ورحمة الله وبركاته وبعد :

أرجو تسهيل مهمة السيد /بندر سماح فهد الشمري

لتطبيق استبيان على مدرسي ومدرسات الحاسوب لجمع المعلومات المتعلقة بطرق تدريس
الرياضيات

أملأ تقديم كل معاونة ممكنة إليه .
مع خالص التحية والتقدير ،،،

مدير عام منطقة الجبراء التعليمية



منطقة الجبراء التعليمية
إدارة الشؤون التعليمية

نسخة : لإدارة الشؤون التعليمية .

نسخة : مراقبة التعليم المتوسط .

APPENDIX K
STAGES OF CONCERN INTERPRETATIONS

Guidelines for Interpretation of the SoC Questionnaire Data

The following guidelines emphasize the interpretation of full SOC profiles based on percentile scores, and are also useful when interpretation is limited to high and second high scores.

Divided into four parts, the guidelines include:

1. Establish a Holistic Perspective;
2. Look at High and Low Stage Scores;
3. Look at Individual Item Responses;
4. Look at the Total Score.

1. Establish a Holistic Perspective.

The goal of interpreting the SoC Questionnaire data is the development of an overall perspective and description of the relative intensity of the different Stages of Concern about a particular innovation for the respondent (s) . The interpreter needs to strive to develop a gestalt based on all the Stages of Concern scores. In developing an interpretation, the interpreter needs to explore alternative interpretations, and check them out against other parts of the SOCQ data. The focus for interpretation should be on what stages are high and low, and what the person seems to be indicating about her/his concerns. Developing this holistic description requires practice and thought. It cannot be done mechanistically.

2. Look at the High and Low Stage Scores.

Look at the relative, highs and lows for that individual, not how high or low the individual is in relation to some other SoCQ data.

Stage 0: High 0 -- Indicates either an experienced user who is more concerned about things not related to the innovation, or a nonuser who is just becoming aware of the innovation.

Low 0/high other stages -- Suggests intense involvement with the innovation.

Low 0, 1, 2, and 3 -- Indicates an experienced user who is still actively concerned about the innovation.

Caution -- If the Stage 0 percentile is particularly high relative to the other scores, the other stage scores may have little significance. If there is an overall high response tendency, the high Stage 0 score may not reflect unconcern about the innovation.

Stage 1: High 1-- Want more information about the innovation.

Low 1-- Feel that they already know enough about the innovation.

Stage 2: High 2 -- Have intense personal concerns about the innovation and its consequences for them. While these concerns reflect uneasiness regarding the innovation, they do not necessarily indicate resistance.

Low 2 -- Feel no personal threat in relation to the innovation.

Stages 1 and 2 generally go together, but when they fall apart, check them closely.

High 1/low 2 -- Need more information about the innovation. These respondents are generally open to and interested in the innovation.

Low 1/high 2 - Have self concerns, tend to be more negative toward the innovation and generally not open to information about the innovation per se.

Stage 3: High 3 -- Have logistics' time, and management concerns.

Low 3 -- Have minimal to no concerns about managing use of the innovation.

High 4 -- Have concerns about the consequences of use for Students.

Low 4 -- Have minimal to no concerns about the relationship of students to use of the innovation.

Stage 5: A high 5 score is complex:

High 5 -- Have concerns about working with others in relation to the innovation. A high 5 with all other stages being low is likely to be an administrator, coordinator, or team leader -- one who perceives herself/ himself to be in a leadership role; coordinating others is the priority.

High 5 with some combination of 3, 4, and 6 also being high -- Have concern about a collaborative effort in relation to the other high stage concerns.

High 5 with 1 being high -- Have concerns about looking for ideas from others, reflecting more a desire to learn from what others know and are doing, rather than concern for collaboration.

Stage 6: High 6 with low 1 -- Not interested in learning more about the innovation. The person is likely to feel that she/ he already knows all about it and has plenty of ideas.

High 6, high 3, low 0, 1, and 2 -- is a user who tends to be positive in attitudes toward the innovation, but has many logistics issues to take care of. The high 6 indicates that the person has ideas about how to improve use of the innovation.

Tailing-up 6 for nonusers -- Has ideas about how to do things differently and is likely to be negative toward the innovation.

3. Look at the Individual Item Responses.

Look at the individual item raw score distributions. Check for patterns, trends, and irregularities. Watch the flow of item scores from left to right. Do they increase or decrease by stages?

- A. If it appears by the raw scores that the respondent Q-sorted according to stages, more credence can be given to the profile.
- B. Lack of sorting suggests general confusion about the innovation or lack of a clear focus (perhaps the respondent did not read the items closely).
- C. Nonusers do not always peak clearly on one or two stages. However, if the items for Stages 0, 1, and 2 are relatively high and Q-sorted then the respondent is likely to be a nonuser.
- D. If there are no clear peak stages, then the person has multiple stages of concern or no clearly focused concerns.

Note: Our experience has suggested that some individuals whose item responses are constantly in the upper extremes (on the SoCQ, this would be the use of 5's, 6s, and 7's) tend to be outspoken with definite opinions. In some cases, consistent use of the lower extreme item responses suggests that the person will be unlikely to share her/his opinions with others. Many of those who consistently use middle range item responses tend not to be forthright in their opinions. Although these patterns have not been specifically investigated with regard to the SoCQ, there are some indications that they do apply.

4. Look at the Total Score.

The total score, to some degree, reflects the amount of involvement the person has with the innovation. However, the total score should not be given very large significance in the overall interpretation.

- A. A low total suggests low intensity of concerns and a comfortableness with the innovation.
- B. A high total percentile suggests definite feelings and involvement with the innovation. These may be either negative or positive.

APPENDIX L
PERCENTILE SCORE SHEET

SoCQ Quick Scoring Device

A

Date: _____

Site: _____

Innovation: _____

Five Item Raw Scale Score Total	Stage 0	Stage 1	Stage 2	Percentiles for Stage 3	Stage 4	Stage 5	Stage 6
0	10	5	5	2	1	1	1
1	23	12	12	5	1	2	2
2	29	16	14	7	1	3	3
3	37	19	17	9	2	3	5
4	46	23	21	11	2	4	6
5	53	27	25	15	3	5	9
6	60	30	28	18	3	7	11
7	66	34	31	23	4	9	14
8	72	37	35	27	5	10	17
9	77	40	39	30	5	12	20
10	81	43	41	34	7	14	22
11	84	45	45	39	8	16	26
12	86	48	48	43	9	19	30
13	89	51	52	47	11	22	34
14	91	54	55	52	13	25	38
15	93	57	57	56	16	28	42
16	94	60	59	60	19	31	47
17	95	63	63	65	21	36	52
18	96	66	67	69	24	40	57
19	97	69	70	73	27	44	60
20	98	72	72	77	30	48	65
21	98	75	76	80	33	52	69
22	99	80	78	83	38	55	73
23	99	84	80	85	43	59	77
24	99	88	83	88	48	64	81
25	99	90	85	98	54	68	84
26	99	91	87	92	59	72	87
27	99	93	89	94	63	76	90
28	99	95	91	95	66	80	92
29	99	96	92	97	71	84	94
30	99	97	94	97	76	88	96
31	99	98	95	98	82	91	97
32	99	99	96	98	86	93	98
33	99	99	96	99	90	95	99
34	99	99	97	99	92	97	99
35	99	99	99	99	96	98	99

APPENDIX M

GUIDELINES FOR INTERVENTIONS

Guidelines for Concern Interventions

**By
Hord, Rutherford, Huling-Austin, and Hall (1987)**

Stage O-Awareness Concerns

- A. If possible, involve teachers in discussions and decisions about the innovation and its implementation.
- B. Share enough information to arouse interest, but not so much that it overwhelms.
- C. Acknowledge that a lack of awareness is expected and reasonable, and that no questions about the innovation are foolish.
- D. Encourage unaware persons to talk with colleagues who know about the innovation.
- E. Take steps to minimize gossip and inaccurate sharing of information about the innovation.

Stage 1-Informational Concerns

- A. Provide clear and accurate information about the innovation.
- B. Use a variety of ways to share information-verbally, in writing, and through any available media. Communicate with individuals and with small and large groups.
- C. Have persons who have used the innovation in other settings visit with your teachers. Visits to user schools could also be arranged.
- D. Help teachers see how the innovation relates to their current practices, both in regard to similarities and differences.
- E. Be enthusiastic and enhance the visibility of others who are excited.

Stage 2-Personal Concerns

- A. Legitimize the existence and expression of personal concerns. Knowing these concerns are common and that others have them can be comforting.
- B. Use personal notes and conversations to provide encouragement and reinforce

- C. personal adequacy.
- D. Connect these teachers with others whose personal concerns have diminished and who will be supportive.
- E. Show how the innovation can be implemented sequentially rather than in one big leap. It is important to establish expectations that are attainable.
- F. Do not push innovation use, but encourage and support it while maintaining expectations.

Stage 3-Management Concerns

- A. Clarify the steps and components of the innovation. Information from innovation configurations will be helpful here.
- B. Provide answers that address the small specific "how-to" issues that are so often the cause of management concerns.
- C. Demonstrate exact and practical solutions to the logistical problems that contribute to these concerns.
- D. Help teachers sequence specific activities and set timelines for their accomplishments.
- E. Attend to the immediate demands of the innovation, not what will be or could be in the future.

Stage 4-Consequence Concerns

- A. Provide these individuals with opportunities to visit other settings where the innovation is in use and to attend conferences on the topic.
- B. Don't overlook these individuals. Give them positive feedback and needed support.
- C. Find opportunities for these persons to share their skills with others.
- D. Share with these persons information pertaining to the innovation.

Stage 5-Collaboration Concerns

- A. Provide these individuals with opportunities to develop those skills necessary for working collaboratively.

- B. Bring together those persons, both within and outside the school, who are interested in collaboration.
- C. Help the collaborators establish reasonable expectations and guidelines for the collaborative effort.
- D. Use these persons to provide technical assistance to others who need assistance.
- E. Encourage the collaborators, but don't attempt to force collaboration on those who are not interested.

Stage 6-Refocusing Concerns

- A. Respect and encourage the interest these persons have for finding a better way.
- B. Help these individuals channel their ideas and energies in ways
- C. that will be productive rather than counterproductive.
- D. Encourage these individuals to act on their concerns for program improvement.
- E. Help these persons access the resources they may need to refine their ideas and put them into practice.
- F. Be aware of and willing to accept the fact these persons may replace or significantly modify the existing innovations.

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majority of the respondents were adopters of the innovation. The analysis of the first highest and second highest concerns among teachers revealed the development of three patterns of concerns: self concerns, mixed concerns, and impact concerns. Results indicated that the majority of teachers were at the mixed-concern level. With more years of experience, teachers' concerns shifted from self to task and finally to impact concerns. The results of concern analysis are consistent with Fuller's theory of concern development.

MANOVA revealed significant differences in means between females and males at management and refocusing stages. Females had higher concerns about management; males had higher refocusing concern. However, no significant relationship was found between experience and the reported stages of concern. For successful implementation, the concerns of teachers must be resolved. The CBAM including the SoCQ is recommended to KISITP coordinators as a diagnostic tool to facilitate change and to provide appropriate staff development. Suggestions were made for future research to continue validation of the SoCQ in Arabic cultures.